THE AMERICAN YEAR BOOK

RECORD OF THE YEAR

1933

THE AMERICAN YEAR BOOK

A Record of Events and Progress

YEAR 1933

EDITOR
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PREFACE

It is probable that future historians will recognize the year 1933 as the transitional period lying between the several years of unrelieved depression and the coming years of industrial revival. This period was one of direct effort to achieve a specific purpose of recovery, a militant attack on economic ineptitude. In presenting to the public this volume of THE AMERICAN YEAR BOOK—the nineteenth of the series—the Editors have been constantly mindful of the manifestations and implications involved in the decrees of Government and in the combined labors of individual and social agencies. Whether the events of 1933 symbolize a fundamental change in the concept of national and international forces or whether these events may be resolved into a formula for meeting a passing emergency, constitutes an inquiry of vast importance. Obviously time alone can supply the definitive answer, but the sources of enlightenment are recorded and discussed in the pages of this work, presented as they are with a view to ensure accuracy and readability and to preserve the value and flavor of contemporary interpretation.

The YEAR BOOK is a compendium of the social, economic and political experience of the American people in a given year. The responsibility for the various topical divisions of the book lies in the Supervisory Board of THE AMERICAN YEAR BOOK CORPORATION which is composed of representatives of forty-five societies of national significance and scope. The Board reflects the close association of leaders in various fields who join their efforts in creating a composite picture of American activity and achievement. Through this organization some two hundred writers have become contributors within their special spheres of learning and professional functioning. The sum of their discussions constitutes an invaluable basis for a sound judgment of the events of the day and preserves for future reference a multitude of comparative data.

A feature of the book is the supplementary lists of societies cognate to each topical division, together with numerous research institutions. These are set down with addresses, every care having been taken to assure the correctness of the addresses so that the reader, the teacher, and the research student may communicate with the societies for information or material which lie beyond the scope of this volume. The YEAR BOOK thus aims to be an intermediary between the searcher and the expert. Additional features of the present issue which the reader will find of value in the hurry and preoccupation of the times are a full chronological record of financial events of the year and an equally useful political chronology which the rapid developments of the Roosevelt Administration in the course of the year 1933 render peculiarly serviceable.

Since the reorganization of the YEAR BOOK in 1925, its publication has been made possible by the cordial coöperation of Mr. Adolph S. Ochs of *The New York Times*. Mr. Ochs has thus added to his many services to the American people by making available to them this broad summary of progress and permanent record of activities and interests which increasingly engage and occupy the American mind.

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THE AMERICAN YEAR BOOK

THE
AMERICAN YEAR BOOK
A RECORD OF EVENTS AND PROGRESS

PART ONE
HISTORICAL

DIVISION I

AMERICAN POLITICAL HISTORY

THE ELECTIONS OF 1933

By Thomas N. Hoover

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PROHIBITION REPEAL AMENDMENT

Elections in odd years are usually of minor importance. This year was an exception, due to the submission by Congress of an Amendment to the Constitution, to be ratified by state conventions instead of state legislatures, the method previously used. Elections were held in 39 states to elect delegates to conventions for ratification or rejection of the amendment to repeal the Eighteenth Amendment. The repeal proposal carried in all but two states—the Carolinas. Maine voted for delegates for repeal, but the convention was not held until Dec. 6. On the preceding day the Eighteenth Amendment had been repealed.

Delegates to conventions in Wyoming and Nevada were chosen at precinct mass meetings or county conventions; there was no popular vote.

GOVERNOR

One governor was elected this year, in the state of Virginia. George C. Peery was the successful candidate.

VOTES ON REPEAL OF THE 18TH AMENDMENT

State	For	Against
Michigan	850,546	287,931
Wisconsin	648,031	141,518
Rhode Island	150,244	20,874
New Jersey	573,532	90,733
Delaware	45,615	13,505
Indiana	557,062	312,120
Massachusetts	436,356	97,702
New York	1,946,532	247,450
Illinois	1,227,668	341,773
Iowa	376,661	249,534
Connecticut	236,742	34,816
New Hampshire	76,044	30,409
California	1,019,818	319,981
West Virginia	218,638	136,552
Arkansas	67,662	46,091
Oregon	136,713	72,854
Alabama	100,269	70,631
Tennessee	126,983	119,870
Missouri	503,642	156,961
Arizona	37,643	11,323
Vermont	41,182	20,714
Colorado	133,066	62,969
Washington	490,088	208,206
Minnesota	390,179	209,049
Idaho	56,652	40,977
Maryland	205,130	45,776
Virginia	99,459	58,517
New Mexico	53,321	14,041
Florida	98,247	24,439
Texas	310,710	195,341
Kentucky	386,653	234,417
South Carolina	33,074	35,845
Ohio	1,444,033	583,842
Pennsylvania	1,864,411	583,513
Utah	101,665	67,234
Maine	114,975	53,000
North Carolina	120,190	293,484

THE UNITED STATES SENATE

In Virginia also was the election of a Senator. Harry F. Byrd, Democrat, was elected over Henry A. Wise, the opposing candidate.

THE HOUSE OF REPRESENTATIVES

Arizona.—A special election to fill a vacancy resulted in the following:

Isabelle Greenway (D)	24,163
H. B. Wilkinson (R)	3,123
D. E. Sumpter (S)	5,556

West Virginia.—A vacancy in the 3d District was filled by the election of Andrew Edmiston, (D), over Howard M. Gore, (R), by a majority of 6,000.

Pennsylvania. — Oliver W. Frey, (D), was elected without opposition, in the 9th District, to succeed the late Henry W. Watson.

Louisiana. — Two elections were held in the 6th District, to fill the vacancy resulting from the death of Bolivar E. Kemp. The forces of Senator Huey Long, without a primary, nominated and elected Mrs. Bolivar E. Kemp to fill the vacancy, at an election held Dec. 5. In many of the precincts no votes were cast. Out of a normal vote of 40,000, Mrs. Kemp received 5,129. A ''Citizens'' election was held in the district on Dec. 27, at which State Senator J. Y. Sanders, Jr., son of former Governor Sanders, bitter opponent of Senator Long, was elected. The struggle will be taken to the House of Representatives for the decision.

New York.—A special election was held Dec. 28 to elect a successor to the late John D. Clarke, of the 34th District. Mrs. Marian W. Clarke, (R), widow of the deceased member, was elected over John J. Burns.

Vermont.—A special election will be held on Jan. 16 to elect a United States Senator to succeed the late Porter H. Dale; also to elect a member of Congress to succeed Ernest W. Gibson, resigned to fill temporarily the vacancy in the Senate.

STATE ISSUES

Alabama. — Four amendments to the constitution were proposed, all of which were ratified. The restrictions of the power of the legislature to decrease salaries were removed. The power to levy income taxes was given to the legislature. Restrictions were placed upon the amount of indebtedness the State should have. A change in the method of amending the constitution was made.

Arizona.—Five proposed constitutional amendments relating to four-year terms of office were all rejected. An amendment providing judgment of death to be administered by lethal gas was ratified.

California.—Eight constitutional amendments and two state issues were submitted: Those relating to Taxation, Unemployment Relief Bonds, Horse Racing Board, Assessments of Property Damaged by Earthquake, Effective Dates of Legislative Acts and County Government were approved. Those Exempting Educational Institutions from Taxation, Bonds for Irrigation, and Diversion of Gasoline Funds, were rejected.

Kentucky.—An amendment proposing certain exemptions of property from taxation was rejected.

Maine.—Two amendments and two initiated bills were submitted to the voters at a special election Sept. 11. One amendment provided for the use of voting machines at elections; the other provided for a bond issue for relief. Both were rejected. The initiated bills provided for excise taxes on power companies, and low tax rates on intangible personal property. These were both defeated.

New Jersey. — Four state issues were submitted to the voters, all of which were approved: No. 1, for the repeal of a $7,000,000 bond issue; No. 2, to aid school districts; No. 3, to reduce state highway bond issue; No. 4, for relief of unemployed and dependents.

New York.—Four proposed amendments were submitted to the voters, three of which were approved. The amendment relating to preference to disabled veterans in civil service was rejected by a vote of 368,683 for and 525,467 against. The three approved were those relating to the method of ascertaining value of private property taken for public use, the use of

Forest Preserves for highway purposes, and the disposition of canal lands in New York City. More than 2,500,000 voters of the state failed to vote on these proposals. A proposal for a state debt of $60,000,000 for relief was approved by a vote of 1,669,801, to 306,341, against.

North Dakota.—An amendment to the constitution relating to county officers was ratified. Another amendment ratified relates to legislative procedure. A legislative measure relating to the administration of insolvent banks was rejected. A referendum on a sales tax measure resulted in the defeat of the act by a vote of 113,807 against, and 41,241 for. A bill to enable the Governor to remove from office the Commissioner of Workmen's Compensation was defeated. An initiated bill to permit manufacture and sale of beer was approved, 116,420 to 48,731 against. An initiated bill to legalize Sunday theaters and movies was rejected, 81,453 for, and 82,235 against.

Ohio.—An amendment proposed by the General Assembly to repeal the State prohibition amendment was approved, 1,250,923, to 578,035 against. An amendment proposed by initiative petition to limit rate of tax on real estate to 1 per cent was approved, 979,061 to 661,151 against. An amendment proposed by initiative petition providing for county home rule was approved, 846,594, to 742,925 against. An initiated bill providing for old age pensions was approved, 1,388,860 to 526,221 against.

Oregon. — An amendment to restrict the granting of bonuses to soldiers and sailors was approved, 113,267 to 75,476. An amendment to provide for county manager form of government was defeated, 66,425 for, and 117,148 against. An amendment to enable prosecution by information as well as by indictment was rejected, 67,192, to 110,755. An amendment relating to debt and tax limitations for municipal corporations was rejected, 82,996 to 91,671. A bill relating to State power fund bonds was rejected, 73,756 to 106,153. A bill providing for a sales tax was rejected, 45,603 to 167,512. An amendment to repeal the state prohibition amendment was approved, 143,844 to 72,745. A bill for a sales tax on oleomargarine was defeated 66,880 to 144,542 against.

Pennsylvania. — The following State issues were voted on:

No. 1—Pensions to blind—carried	Yes No	1,092,001 355,405
No. 2—Assess highway improvements upon abutting property—lost	Yes No	436,076 641,960
No. 3—Give General Assembly right to prescribe investments for trust funds—carried	Yes No	607,417 460,055
No. 4—Soldiers Bonus—carried	Yes No	964,708 580,794
No. 5—Eliminating tax qualifications for voting—carried	Yes No	670,325 466,136
No. 6—Changing the borrowing capacity of counties—lost	Yes No	470,147 522,521
No. 7—Eliminating the long and short haul clause—carried	Yes No	710,191 331,224
No. 8—Relief bond issue—carried	Yes No	1,240,528 349,862
No. 9—Permitting Philadelphia to levy assessments against abutting or non-abutting properties—carried	Yes No	489,865 444,934
No. 10—Permitting the General Assembly to authorize cities to take more land and property than in needed for actual construction of highways or streets—carried	Yes No	497,289 493,048
No. 11—Greater Pittsburgh—carried	Yes No	568,798 467,492
No. 12—Toll bridge bond issue—carried	Yes No	542,698 541,106

Rhode Island.—A referendum on the Unemployment Relief Loan Act resulted in the approval of the act by a vote of 142,185 to 23,273 against.

Utah.—An amendment to the constitution relating to minimum wages for women and minors was approved, 133,771 to 21,941 against. An amendment to repeal the State prohibition amendment was approved, 99,943 to 62,437 against.

LOCAL ELECTIONS

New York.—Fiorello H. La Guardia, Independent Republican and former member of Congress, was elected Mayor of New York, on a fusion ticket, over Mayor John P. O'Brien, the Tammany candidate, and Joseph V. McKee, who was supported by Postmaster General James A. Farley. The votes were: La Guardia, 858,551; McKee, 604,045, and O'Brien, 586,100.

Cleveland.—Harry L. Davis, Republican, once Governor of Ohio and three times Mayor of Cleveland, was elected to a fourth term as Mayor over Mayor Ray T. Miller, (D).

Detroit.—The voters of Detroit retained Acting-Mayor Frank Couzens, son of Senator James Couzens, as Mayor.

Pittsburgh.—William N. McNair, (D), was elected Mayor.

THE PRESIDENT AND HIS POLICIES

By Everett S. Brown

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DOMESTIC POLICIES

Inaugural Address.—Appealing for popular support of his leadership, President Roosevelt declared that the greatest primary task was to put people to work. This could be "accomplished in part by direct recruiting by the Government itself, treating the task as we would treat the emergency of a war." This must go hand in hand with a redistribution of the population and with "definite efforts to raise the values of agricultural products." It would be helped "by insistence that the Federal, state and local governments act forthwith on the demand that their cost be drastically reduced," and "by national planning for and supervision of all forms of transportation and of communications and other utilities which have a definitely public character." He insisted that "there must be a strict supervision of all banking and credits and investments," and "there must be provision for an adequate and sound currency." Although international trade relations were vastly important, the President regarded them as necessarily "secondary to the establishment of a sound national economy." He said that the emergency at home could not wait upon the restoration of world trade by international economic adjustment. In foreign policy, the President said he "would dedicate this Nation to the policy of the good neighbor—the neighbor who resolutely respects himself and because he does so, respects the rights of others." He expressed the hope that under our constitutional system the normal balance of executive and legislative authority might be adequate for the task confronting the government but be warned that the emergency might call "for temporary departure from that normal balance of public procedure." He said he would recommend to Congress the measures necessary in the circumstances; but in the event of the failure of Congress to act, he would ask Congress for "broad executive power to wage a war against the emergency, as great as the power that would be given to me if we were in fact invaded by a foreign foe." In this last statement he foreshadowed the grants of extraordinary powers given to him in the first session of the Seventy-Third Congress.

Banking Emergency.—Faced with a financial crisis upon entering office, President Roosevelt made use of a provision of a war emergency act of 1917 to proclaim a bank holiday from March 6 to March 9. He called a special session of Congress for March 9 and asked for legislative control over the banks, with power to open sound banks and to reorganize others. He also asked that the Federal Reserve Act be amended to provide for additional currency, adequately secured. Congress passed the Emergency Banking Act on March 9. The President immediately used the power conferred on him to extend the banking holiday to March 13. Work was begun on a plan to reopen the banks and for making available the benefits of the act. On the evening of March 12, President Roosevelt in a nationwide radio broadcast asked for public support for his banking and currency program. He pointed out that the bank holiday was the "first step in the Government's reconstruction of our financial and economic fabric." The second step was the passage of legislation by Congress confirming the President's proclamation and broadening his powers so that it was made possible to extend the bank holiday and to lift the ban of the holiday gradually. The third stage was the series of regulations permitting the banks to continue their functions to take care of immediate necessities. The president's policy was carried out by various government agencies, especially the Treasury Department, and gradually the banking situation was improved. Closely associated with this movement were the Glass-Steagall Act to reform the national banking system, and the Securities Act to prevent frauds in the sales of securities.

Economy Program.—On March 10 the President sent to Congress the draft of an economy bill to reduce Federal expenses by $500,000,000, the savings to be effected by curtailments in pensions and similar benefits and allowances to war veterans and in pay of Government officers and employes. Upon the passage of the bill the President placed Lewis Douglas, Director of the Budget, in charge and drastic cuts were made, especially in allowances to veterans whose disabilities were not directly attributable to the war. In the face of a movement among some of the war veterans to develop popular sentiment in favor of restoration of their previous allowances, President Roosevelt addressed the American Legion Convention in Chicago, Oct. 2. He declared the two enemies of national unity were sectionalism and class. In the latter connection he said that in undertaking to put the Treasury in the "black" it was necessary to observe the principle "that no person because he wore a uniform must thereafter be placed in a special class of beneficiaries over and above all other citizens."

Farm Relief.—The primary objective of the President's farm relief program was to bring the prices of farm products into pre-war parity with prices of industrial products. As one means toward this end a bill was introduced in Congress on March 16, conferring on the Secretary of Agriculture extensive powers to effect reductions in production by contract or otherwise, to regulate interstate and foreign trade in farm products, and to levy taxes on processors of farm commodities to pay the expenses of the plan. In a message read Dec. 11 at the opening session of the American Farm Bureau Federation, President Roosevelt held that "in a few short months the whole complexion of the agricultural outlook has been changed." He said, "we seem to be on our way," but admitted "we are not yet out of the woods."

National Recovery Program. — President Roosevelt early made it apparent that he believed a planned economy was essential to recovery. Legislation was introduced to aid the farmers; to provide for a plan to regulate hours, wages and industrial production; to coördinate the railroads; to carry out a scheme of social control in the Tennessee River valley; to coöperate with the states to relieve distress; to make loans to home owners; and to initiate and carry out an extensive program of public works. On May 4, the President in a speech before the Chamber of Commerce of the United States, urged employers to raise wages, to end unfair competition, and "to lay aside special and selfish interests to think of an act for a well-rounded national recovery." In his radio address of May 7, he pointed to the need for "a partnership between government and transportation; not partnership in profits, because the profits would still go to the citizens, but rather partnership in planning and partnership to see that the plans are carried out."

National Industrial Recovery Act.—In signing this bill on June 16, President Roosevelt said: "History probably will record the National Recovery Act as the most important and far-reaching legislation ever enacted by the American Congress. It represents a supreme effort to stabilize for all time the many factors which make for the prosperity of the nation and the preservation of the American standard of living." So, too, in his message to Congress in connection with the Tennessee Valley project the President emphasized the need for planning: "Many hard lessons have taught us the human waste that results from lack of planning . . . If we are successful here we can march on, step by step, in a like development of the other great natural territorial units within our borders." On June 24, President Roosevelt, in a radio address, outlined the theory of the National Industrial Recovery Act and appealed for support in the "offensive against unemployment." In order to coördinate the machinery which had been established under the various recovery acts, President Roosevelt on July 11 created an executive council composed of members of the Cabinet and the heads of the special agencies set up by Congress, with Frank C. Walker as secretary and coördinator. In order to minimize the danger of labor troubles, the President on Aug. 5 appealed for an end to strikes and lockouts and appointed a mediation board under the chairmanship of Sen. Robert F. Wagner to settle all industrial disputes. Under the recovery program, codes were drawn up and adopted for practically all industries, and millions of men were set to work. In his address on Dec. 7 before the Federal Council of the Churches of Christ in America the President reiterated his faith in his program. He said he believed the country was "entering upon a time of great gain" and that it could be a prosperity "socially controlled for the common good."

Government Purchase of Gold.—In a radio speech delivered Oct. 22, after reviewing the progress made toward economic recovery, President Roosevelt repeated that the definite policy of the government had been to restore commodity price levels. Once the present level had been restored the next step sought would be "to establish and maintain a dollar which will not change its purchasing and debt-paying power during the succeeding generation." As a move toward this end, he announced the policy of controlling the gold value of the dollar at home by establishing a government market for gold in the United States. In conformity with this policy, the President authorized the Reconstruction Finance Corporation "to buy gold newly mined in the United States at prices to be determined from time to time after consultation with the Secretary of the Treasury and the President." He stated also that whenever necessary gold would be bought and sold in the world market. This policy aroused a storm of protest and criticism at home and abroad.

Silver Purchase.—By an Executive order of Dec. 21, the President ratified the silver agreement negotiated at the London Conference and provided for the purchase of practically all newly mined domestic silver, half to be coined and half to be deposited in the Treasury. The order is expected to satisfy the advocates of silver monetization, regarded as one of the powerful groups favoring inflation.

Alcoholic Liquor.—On March 13 President Roosevelt requested Congress to modify the Volstead Act to permit the sale of beverages containing 3.2 per cent of alcohol. Revenues derived from the licensing of brewers and dealers and from taxes on the sale of the beverages were expected to assist in the balancing of the budget. In a telegram of July 8 to Leon McCord, National Democratic Committeeman of Montgomery, Ala., the President quoted the pledge of the Democratic platform advocating repeal of the Eighteenth Amendment and urged favorable action by Alabama, Arkansas, Kentucky and other states which had not yet ratified the repeal amendment. As a material inducement toward repeal it was provided in the National Recovery Act that, upon the ratification of the repeal amendment, the special taxes imposed by that act would be supplanted by revenue derived from taxes on liquors.

Repeal Proclamation.—On Dec. 5, simultaneously with the proclamation by Acting Secretary of State, William Phillips, of the adoption of the Twenty-first Amendment, President Roosevelt, pursuant to the provisions of the National Recovery Act, proclaimed the Eighteenth Amendment repealed. He urged everyone "to coöperate with the government in its endeavor to restore greater respect for law and order," by confining purchases of alcoholic beverages to dealers or agencies duly licensed by state or Federal license. He also asked the states not to authorize the return of the saloon, and expressed the hope that the people would be temperate in their use of alcoholic beverages.

Christmas Amnesty.—By an amnesty proclamation issued Dec. 23, President Roosevelt declared and granted a full pardon to all persons who had been convicted of conspiracy to defeat the draft or for violating the espionage act during the World War.

FOREIGN POLICY

World Economic Conference. — Although it was apparent that a wide difference of opinion existed between President Hoover and President-elect Roosevelt on the procedure with respect to the war debt problem, some progress toward the formation of a policy for the incoming administration was made on Jan. 20. On that date Mr. Roosevelt called at the White House for a conference with President Hoover. Others present were Secretaries Stimson and Mills and Messrs. Norman Davis and Raymond Moley. A statement was issued to the affect that, since the British Government had asked for a discussion of the debts, the incoming administration would be glad to receive their representatives early in March. The statement added that it would be "necessary to discuss at the same time the world economic problems in which the United States and Great Britain are mutually interested, and, therefore, that representatives should also be sent to discuss ways and means for improving the world situation." Mr. Roosevelt let it be known that the same procedure might be employed by the other debtor countries. In preparation for the World Economic Conference, summoned to meet in London in June, President Roosevelt discussed the problems before the Conference with representatives of foreign countries whom he invited to Washington. As a preliminary step toward the restoration of economic order in the world, the United States advocated a tariff truce during the period of the World Economic Conference, a proposal which did not at first find much favor in Europe. In addressing the American people on May 7, President Roosevelt emphasized four objectives of the Economic and Disarmament Conferences: reduction of armaments to relieve tax burdens, "a cutting down of the trade barriers in order to restart the flow of exchange of crops and goods between nations," the stabilization of currencies, and the establishment of friendlier relations between nations. On May 16, the President repeated that the Conference must "supplement individual domestic programs for domestic recovery by wise and considered international action." However, it was not clear just what policy the administration intended to pursue as Secretary of State Hull declared that "business recovery must be preceded by the restoration of international finance and commerce"; whereas, Assistant Secretary of State Moley held that "each nation must set its own house in order." Mr. Moley asked the American people not to expect too much of the Conference. Discussions at the Conference indicated an early currency agreement but on June 17, President Roosevelt rejected the proposal to stabilize currencies, making it clear that he would enter into no agreement which would give foreign countries the advantage of deflated currencies just when prices were beginning to rise in the United States. When Great Britain appealed through Mr. Moley to President Roosevelt to join in a declaration intended to halt speculation in dollars, the President, on July 3, rejected the proposal. It was evident that the United States would not stabilize its currency until there had been a sufficient rise in prices. Although Secretary Hull worked hard to improve relations between the different delegations, little was accomplished, and the fate of the Conference was left in the hands of an executive committee.

Disarmament.—Anticipating by a day the summoning of the German Reichstag to hear a statement by Chancellor Hitler on German foreign policy, the President on May 16, sent an appeal to the rulers and heads of State of 54 nations to abolish offensive weapons of warfare. To insure peace during the period of disarmament, all nations should agree not to increase their armaments, and should enter into a solemn pact of non-aggression. ''Common sense points out,'' said the President, ''that if any strong nation refuses to join with genuine sincerity in these concerted efforts . . . the civilized world . . . will know where the responsibility for failure lies.'' Aside from the warning to Germany, this statement was regarded as significant as a possible abandonment of the traditional American policy of isolation in foreign affairs.

War Debts.—In a statement issued on June 14, on Great Britain's announcement of her intention to pay a part of her debt instalment as a token, President Roosevelt said he did ''not characterize the resultant situation as a default.'' He pointed out that the debt settlement was made under authority of Congress and that Congress alone had ''the right to alter the amount and method of payment of this debt.'' He said the consideration of debts was not on the program of the London Economic Conference and that ''the American delegates have been instructed not to discuss debts with the representatives of any of the debtor governments. This is in accordance with the further principle that I have felt important, that the debts be considered on their merits and separate from other international economic questions.'' These statements form the basis of President Roosevelt's policy in treating with the different governments respecting the war debts.

Recognition of Russia.—In a letter of Oct. 10 to Mikhail Kalinin, President of the All Union Central Executive Committee in Moscow, President Roosevelt expressed regret that the Russian and American peoples were ''without a practicable method of communicating directly with each other,'' and stated he would be glad to receive representatives ''to explore'' questions of difference between the two countries. In reply, Mr. Kalinin agreed to this proposal and sent Maxim Litvinoff, People's Commissar for Foreign Affairs, to Washington. Following discussions with M. Litvinoff, President Roosevelt, on Nov. 16, announced resumption of diplomatic relations with the Government of the Union of Soviet Socialist Republics and appointed William C. Bullitt as ambassador to the Soviet Union. Speaking at Savannah, Ga. on Nov. 18, the President said he believed that through the resumption of relations between the two countries, ''the prospects of peace all over the world are greatly strengthened.''

Cuba.—The overthrow of Machado and the subsequent events in Cuba led to assurances by Secretary of State Hull that the United States had no desire to intervene and would ''welcome any government representing the will of the people of the republic and capable of maintaining law and order throughout the island.'' On Sept. 6, President Roosevelt invited the representatives of Argentina, Brazil, Chile and Mexico to meet him and repeated the statement made by Secretary Hull. To date, this policy has been scrupulously followed, although the appearance of American cruisers in Cuban waters caused some alarm in Cuba and in South American countries.

Latin America.—In his inaugural address President Roosevelt stated his policy of ''the good neighbor—the neighbor who resolutely respects himself and because he does so, respects the rights of others.'' This policy was emphasized by Secretary Hull in his speech of Dec. 15 before the Pan-American Conference at Montevideo. He said that the people and the government of the United States felt the keenest interest in the conference and had the strongest desire to contribute to its success. He declared that "the satisfactory development of civilization itself in this Western world depends on coöperative efforts by all the Americas." Assurance against aggression on the part of the United States was made in the following words: "The people of my country strongly feel that the so-called right of conquest must forever be banished from this hemisphere, and most of all they shun and reject that so-called right for themselves." Presumably Secretary Hull was voicing the sentiments of President Roosevelt.

World Peace Plan.—Speaking at the observance of the seventy-fifth anniversary of the birth of Woodrow Wilson on Dec. 27, President Roosevelt made his most important pronouncement of the year on American foreign policy. After declaring that the time had come for the United States to announce that its definite policy was one opposed to armed intervention, and that we do not contemplate membership in the League of Nations, the President laid down the following three-point world peace plan: (1) Every nation to agree to eliminate over a short period and by progressive steps, every weapon of offense; (2) no nation to permit any of its armed forces to cross its own borders into the territory of another nation; and (3) every nation, without exception, to enter into the agreement by solemn obligation.

NATIONAL PERSONALITIES

By Everett S. Brown

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THE PRESIDENTS

Franklin D. Roosevelt.—The genial personality of the President has made a strong impression on the American people. His courage in facing the tremendous problems of government and his frequently-expressed belief that "we are on our way" have had a very beneficial influence. Making use of the radio he has at critical moments taken the people into his confidence and has discussed with them frankly his program of action. Despite the criticisms of some of his policies and of many of his agents, there has as yet been practically no criticism of the President personally. He has been aided greatly by his methods of dealing with the press, which he has handled with consummate skill.

Herbert Hoover. — In the closing months of his administration, President Hoover disclosed statesmanship and force. In a speech on measures necessary for economic recovery he declared that "we cannot isolate ourselves." He asserted that the time had come when nations must accept "the obligations to coöperate in achieving world stability so mankind may again resume the march of progress." In vetoing the Philippine Independence Bill he denounced the selfish motives which had inspired its passage. On his retirement from office, Mr. Hoover returned to his home at Stanford University. He carefully refrained from any criticisms of President Roosevelt's policies, his only public utterance being directed against Governor Rolph of California for his approval of the lynching at San José.

ADMINISTRATION LEADERS

Hugh S. Johnson.—General Johnson, a soldier of the "hard-boiled" type, has held much of the press spotlight as Administrator of the National Recovery Act. Dynamic and forceful, his lack of tact frequently led him into unnecessary difficulties. His most important dispute was with Henry Ford.

Harold L. Ickes.—The Secretary of the Interior and Administrator of the $3,300,000,000 Public Works program became one of the most powerful figures in the Roosevelt Cabinet. Quiet-spoken and a pleasant man to deal with, he has been very successful in his relations with governors of the states and officials of other units of the government.

Joseph B. Eastman.—The task of rescuing the railroads and putting them on a sounder basis was allotted to Mr. Eastman as Federal Coördinator of Transportation. For many years on the Interstate Commerce Commission, Mr. Eastman was well equipped for his new post.

Henry Morgenthau, Jr. — A close friend of President Roosevelt, Morgenthau was appointed governor of the Farm Credit Association, from which post he was called to serve as Under Secretary and acting head of the Treasury, to fill a vacancy caused by the grant of a leave of absence to Secretary William H. Woodin and by the resignation of Under Secretary Dean G. Acheson. With the final resignation of Secretary Woodin, Mr. Morgenthau was appointed Secretary of the Treasury.

Henry A. Wallace.—The vigorous young Secretary of Agriculture has been one of the outstanding members of the Cabinet. He has courageously faced both rural and urban critics of the Administration's farm policy, condemning alike the conservatives and the inflationists. Permanent farm relief in his opinion requires a rise in the general price level and a closing of the gap between agricultural and non-agricultural forces.

Robert F. Wagner.—After playing an important part in the drafting of the National Industrial Recovery Act, Senator Wagner was appointed head of the National Labor Board, to adjust differences resulting from opposing interpretations of re-employment agreements. Wagner's thesis is that there must be an equitable distribution of the returns of industry, which could be accomplished only by a true coöperation of capital and labor, based on mutual understanding.

Cordell Hull.—The appointment of Hull as Secretary of State was regarded with general satisfaction. Long years of study had given him a comprehensive knowledge of foreign affairs and particularly of the tariff issue. At the London Economic Conference he disclosed a wide acquaintance with European economic problems which won for him the respect of the foreign delegates. His friendly spirit of coöperation made him popular at the Pan-American Conference at Montevideo.

Jesse H. Jones. — A shrewd and successful banker and business man, the Chairman of the Reconstruction Finance Corporation advised the bankers to "be smart for once, take the Government into partnership and then go partners with the President without stint."

Lewis Douglas.—The task of balancing the budget was given to Lewis Douglas, former Representative from Arizona. A war veteran himself, the Director of the Budget did not hesitate to demand reductions in allotments to war veterans whose disabilities could not be traced directly to war service. He declared that the credit of the Government must remain unimpaired and that he would strive toward that end.

James Farley. — The handling of the party patronage was largely entrusted to the astute Postmaster General who had already proven his skill as Chairman of the Democratic National Committee.

THE BRAIN TRUST

College professors were called to fill many posts in the Roosevelt Administration. Raymond Moley, one of the most intimate of the President's early advisers eventually found himself out of sympathy with the policies of Secretary Hull and resigned his position as Assistant Secretary of State to assume the editorship of a new political magazine. Prof. George F. Warren stepped to the fore as the President's financial adviser, while Professors A. A. Berle, Jr., and R. G. Tugwell supplied theoretical arguments in support of the New Deal. In this category also might be placed Dr. Arthur E. Morgan who was called from the presidency of Antioch College to become chairman of the board of the Tennessee Valley Authority.

ADMINISTRATION CRITICS

Alfred E. Smith. — In his usual plain-spoken way, Mr. Smith attracted national attention by his criticism of the President's financial policy and advocacy of a return to the gold standard. His statement that he was "for gold dollars as against baloney dollars" caught the popular fancy, as did his reference to "alphabet soup" in connection with the many Federal establishments known by their initials.

Oliver M. W. Sprague.—On Nov. 16, Professor Sprague submitted to President Roosevelt his resignation as financial and executive secretary to the Secretary of the Treasury. He announced that he was in fundamental disagreement with the monetary policies of the Administration. In his opinion "our immediate concern is to extricate ourselves from the depression rather than with the course of prices after that happy event." He also opposed the recovery program as involving expenditures far in excess of current revenues.

WOMEN IN POLITICS

Frances Perkins (Mrs. Paul Wilson).—The first woman to hold a Cabinet position, Miss Perkins, Secretary of Labor, brought to her task a liberal social outlook. Her championship of workers' rights assured labor that its interest would be cared for, while her tactful handling of the press assisted her greatly in obtaining public support for her proposals for reform.

Ruth Bryan Owen. — Nominated as Minister to Denmark, Mrs. Owen is the first woman to be appointed an envoy from the United States to a foreign government. Through her personal charm she won instant approval in Copenhagen.

Nellie Tayloe Ross.—The selection of Mrs. Ross to be Director of the Mint marks another innovation. Formerly Governor of Wyoming, Mrs. Ross has been one of the leading women in the Democratic Party.

Isabella Greenway.—The election of Mrs. Greenway as the first woman Representative in Congress from Arizona, brings to Washington a schoolmate and close friend of Mrs. Roosevelt. Mrs. Greenway served as bridesmaid at the Roosevelt wedding and seconded the nomination of Franklin D. Roosevelt at the Democratic Convention in Chicago.

MISCELLANEOUS

Anton Cermak. — Mayor Cermak of Chicago died from wounds received when Giuseppe Zangara attempted to assassinate President-elect Roosevelt at Miami on Feb. 15.

Norman H. Davis.—Holding the special and unique post of Ambassador at Large, Mr. Davis served as spokesman for the United States at the Disarmament Conference at Geneva.

J. P. Morgan.—The Senate inquiry into the operations of private bankers brought J. P. Morgan to the witness stand. The disclosures that neither Mr. Morgan nor any of his partners paid an income tax in 1931 and 1932 led to a movement to revise the income tax law. Later developments in the banking inquiry also hastened the passage of the Glass Banking Bill.

Fiorello H. La Guardia.—Elected Mayor of New York over John P. O'Brien, the Mayor and regular Tammany nominee, and Joseph V. McKee, Mr. La Guardia, candidate of the Fusion party, promised to bring to an end sixteen years of Tammany rule.

Milo Reno.—Opposed to Secretary of Agriculture Wallace and in an effort to force adoption of his own farm relief plan, Milo Reno organized the Farmer Holiday movement in the Middle West. A policy of boycotts and intimidation led to some destruction of property but the movement did not spread widely.

William C. Bullitt.—Long an advocate of recognition of Soviet Russia, Mr. Bullitt was appointed our first ambassador to the Soviet Union.

John R. McCarl. — Comptroller General McCarl became a prominent figure in the NRA program because of his power to pass upon government expenditures. His decision that low bids made by Ford dealers on government departmental auto truck contracts should be accepted was of the greatest importance in the dispute between Henry Ford and General Hugh S. Johnson.

CONGRESS AND ITS FUNCTIONS

By George C. S. Benson

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REMAINDER OF THE SECOND SESSION OF THE SEVENTY-SECOND CONGRESS

Domination by Politics. — The "wait until March 4th" spirit was more evident than ever when Congress convened on Jan. 3, 1933. President Hoover had some things he wished to do in the remainder of his term but the 219 Democrats in the House were not giving ground to 209 Republicans nor were the 47 Democrats and 1 Farmer Labor Senators in the Senate likely to follow the lead of 48 Republican Senators. So, as was usual with a short session, it was dominated by politics. Lame ducks sought cover but bloodthirsty Democratic Senators refused to confirm Hoover appointments. A speedy summary of the functioning of Congress from Jan. 3 to March 4 follows:

Repeal Resolution. — Most noteworthy was the passage of S Joint Res. 211 introduced by Senator Blaine of Wisconsin for repeal of the Eighteenth Amendment. Party lines were smashed on this issue of bloc line-ups or personal predilections. The Senate vote was: for repeal 33 D., 29 R., 1 F. L.; against 9 D., 14 R., which proves merely that a few more Democrats were moist. Senator Glass of Virginia was the only conspicuous Democratic dry while his fellow Democrats, Wagner, Tydings and Harrison, joined the Republicans Bingham and Barbour in helping Senator Joseph Robinson put the legislation through. The new attitude toward the question was a reflection of the last election and the new urban power in politics. *The New York Times* calculated that though only two-thirds of the Senators voted for repeal, they represented almost 98,000,000 people. Efforts of the drys in the House to slow up repeal by amendments which raised legal disputes were foiled by sticking to the "naked repeal" of the Democratic platform. The Collier bill legalizing non-intoxicating beer (H.R. 13742), had passed the House on Dec. 21 as more or less of a Democratic party measure. It had a favorable report from the Senate Judiciary Committee on Jan. 23. Alcoholic content of 3.2 to which the House had agreed was reduced to 3.05 and wine was included. The bill was then referred to the Finance Committee but there was no leadership to force passage in the short session.

Agricultural Relief. — The other two alternatives of equalization fee and export debentures appearing hopeless, farm relief organizations turned to support the third part of their three-way plan—the domestic allotment scheme—and did yeoman service in paving the way for the next Congress. On Jan. 3, the House Committee on Agriculture reported the Jones Bill (H.R. 13991) to apply the scheme to cotton, wheat, tobacco, and hogs. To a log-rolling motif, rice, butter fat and peanuts hopped from the floor of the House to the gravy train, and all were passed on Jan. 12, 203-150, only to be held up in the Senate whose committee eventually reported it in simplified form but not soon enough for passage.

Other Legislative Matters. — Remaining items of legislation reflected the do-nothing spirit. Appropriation bills were passed more or less briskly but new items failed. Democratic House leaders decided not to act on the Hoover reorganization program or on new tax legislation. The re-passage of the Hawes-Cutting bill (H.R. 7233) for Philippine independence coming after a ten-year period over Hoover's veto was a surprise. The Glass banking reform bill (S. 4412) was subjected to a spectacular filibuster by Senator Huey Long (La.), egged on by certain Republicans. Long was fighting against branch banking and for a Treasury connection with the Federal Reserve Board. He was severely criticised, and the greatest ultimate effect may have been the development of a sense of responsibility on the part of Senate Democratic leaders as a result of the avalanche of criticism of Long's filibuster. Efforts of a Senatorial bloc to shift Federal unemployment relief funds from a loan to a direct grant failed by a vote of 44-28 on Feb. 28. On Feb. 24 the House refused to follow the majority of the Judiciary Committee and by a vote of 183-142 impeached Judge Harold Louderback of California. A huge number of inflationary bills of diverse character were introduced. They were important for what they foretold of the next Congress. Just before the session ended a bill permitting the Comptroller of the Currency to protect bank deposits was passed.

THE SEVENTY-THIRD CONGRESS

Composition and Procedure.—When the Seventy-Third Congress convened in special session on March 9 it was very different from the Seventy-Second. Over 160 of the old Congress did not return. In the Senate there were 59 Democrats, 1 Farmer Labor and 36 Republicans. The House had 312 Democrats as against 5 Farmer Labor and 117 Republican members. Many long familiar faces were gone. Senators Smoot of Utah, Moses of New Hampshire, Watson of Indiana, Bingham of Connecticut, Shortridge of California, were gone, taking their conservatism with them. Senators Swanson and Hull left for the Cabinet as would have Senator Walsh, had his untimely death not intervened. House absentees included Mrs. Ruth Bryan Owen, Mrs. Ruth Pratt, LaGuardia of New York, Schafer of Wisconsin, and Hawley of Oregon. Representative Douglas moved to an office of cabinet importance, if not rank, as Director of the Budget.

The Democrats showed every tendency to take advantage of the control the country had given them in November. Speakership rivalries were settled by a deal which put Speaker Rainey in the chair, Representative Byrns of Tennessee in as floor leader, and Representative Greenwood of Indiana as majority leader. A novel development was the formation of a Senate conference caucus of Democrats which should be bound by a majority vote, in contrast to the House rule of a 2/3 majority to bind Representatives. Senators Long, Costigan, and McGill were opposed but Senator Robinson carried it through. Senator McNary of Oregon and Representative Snell of New York were minority leaders.

Factors Favoring Executive Leadership.—In his inaugural, President Roosevelt remarked: "It is to be hoped that the normal balance of executive and legislative authority may be wholly adequate to meet the unprecedented task before us. But it may be that an unprecedented demand and need for undelayed action may call for temporary departure from that normal balance of public procedure." In contrast to these mild words we have headlines, even in the unsensational *New York Times*, "Roosevelt Gets Power of Dictator." Which side is true is a question which the material presented here may help to decide. The history of our Federal legislation is usually a story of special interests forcing particular bills through the many cogs which separation of powers has put into the legislative machinery. It is a system which provides for no unified policy and no leadership. Those who read Mr. Roosevelt's eloquent but indefinite campaign speeches expected little more in the way of true policy formation from him than from previous occupants of the White House. Nevertheless, several factors whose relative importance it is difficult to gauge, were moving in a contrary direction. After twelve years of famine, hungry Democratic office seekers saw jobs in sight and feared the man who controlled them. The depression and the crisis which closed all the banks of the country the day Mr. Roosevelt came into power, made, as times of stress always make, for strong leadership. The development of the Democratic Senate caucus was introducing an important element of party responsibility. Finally, the Democrats as the critical and progressive party, had to act, and action required leadership. That leadership was forthcoming, and the record of major legislation in the hundred odd days of the special session was unbelievably long. An important effect in legislation was that the already noted tendency to give broad powers to the executive was greatly extended. If we subdivide the measures passed by this session, a division into ''recovery'' and ''reconstruction'' laws can be made, the latter being of more permanent importance.

Banking Legislation—First on the recovery program was, obviously, banking. The President had done much during the banking crisis under shadowy statutory authority but he immediately called on Congress to ratify his actions. In seven and one-half hours after convening on March 9, Congress had passed Public Act No. 1 (Act of March 9, 1933) the emergency banking act, a speed record for legislative formalities. Section 1 of the new legislation confirmed the action taken by the President since March 4. Section 2 gave him power to investigate, regulate, or prohibit any transactions in foreign exchange, transfer of credit by banking institutions, ''and export, hoarding, melting, or earmarking of gold and silver coin or bullion or currency.'' Section 3 empowers the Secretary of the Treasury to compel gold hoarders to redeliver their supply of gold to the banks. Section 4 provides that no member bank shall transact business during an emergency period except under authorization of the Secretary of the Treasury. Other sections provide for what are euphemistically called bank conservators under the Comptroller of the Treasury and make R. F. C. funds available for bank preferred stocks, and provide for issue of ''circulating notes'' by the Secretary of the Treasury. This bill, with its far-reaching extension of power to the Administration was of course of an emergency nature and so excited little opposition. It was passed unanimously in the House; only Borah, Carey, LaFollette, Nye, Costigan, and Shipstead opposed in the Senate. It had previously been discussed by the Administration with Democratic legislative leaders, including Messrs. Garner, Rainey, Robinson of Arkansas, Glass, Dill, and Representatives Byrns, Steagall, Woodman and McDuffie. Senators McNary and Johnson and Representative Snell from the Republican side were also brought into conference.

At the close of the session (June 13) the Glass-Steagall banking reform bill was approved by an almost unanimous vote in the House and without roll call in the Senate. Senators Vandenberg and Long, who were expected to object because the taking effect of the deposit insurance clause was postponed, were mollified by permission to the executive to start insurance sooner than the set date of Jan. 1, 1934. Neither Mr. Glass nor the Republican conferees cared for deposit insurance but concentrated their attention on the divorce of security affiliates. The Federal Reserve Board was empowered to prevent speculation; member banks were forbidden to lend to their officers; interest payments on demand deposits were forbidden.

EMERGENCY RELIEF

A second important item on the immediate ''recovery'' program was the Wagner - Lewis $500,000,000 emergency relief law (H.R. 4506) Act of May 12, 1933. It passed the House April 21, 331-42 (For 252 D., 74 R., 5 F. L.; Against 12 D., 30 R., 5 F. L.), and passed the Senate on May 1 (S 812) without a roll call.

It contained many of the relief ideas previously opposed as "inimical to the principles of American government." It authorized the R. F. C. to make $500,000,000 available to be spent by the Director of a new Federal Emergency Relief Administration. The borrowing capacity of the R. F. C. was correspondingly enlarged but the administration of relief was carefully taken out of the unsuitable hands of bankers and brokers and put under a man who had been previously engaged in relief work. This gentleman proceeded to lay down rules for Federal grants, and subsequently to take a large appropriation from public works. Without realizing what was happening, Congress, under pressure of circumstances and a strong executive, had totally abandoned the fundamental principles of the American Federal system of a year before, *i.e.*, no Federal aid to the unemployed.

ECONOMY LAW

The Act (H. R. 2820) of March 20, 1933, which aroused greatest admiration for Mr. Roosevelt's leadership of Congress and at the same time gave him the greatest degree of difficulty, was the Economy law which after some smart legislative floor work on the part of Representative McDuffie and clever maneuvering by Roosevelt himself passed the House March 11, 2261138 (for 197 D., 69 R.; against 92 D., 41 R., 5 F. L.) and the Senate, March 15 (for 43 D., 19 R.; against 4 D., 9 R.). The power given the Administration to establish a new pension system within broad limits was not unusual in contrast to classificatory powers enjoyed in other branches of the government but did represent a marked inroad on the jealously guarded province of a special legislative interest — the veterans. Maximum and minimum rates for disabilities and deaths were kept as in the preceding law—$6.00 to $275.00 per month for disability and $12.00 to $75.00 for death—but the authority granted the President between these brackets was complete. Existing benefit laws were generally repealed. Salaries of Senators and Representatives were reduced 15 per cent, and the President was given authority to reduce other Federal salaries on a cost of living basis up to 15 per cent. Regulations were to be submitted to Congress but for information, not for action.

This sharp restriction of legislative power required clever piloting through the legislative shoals—now become rapids — which the new Democratic leadership loyally and brilliantly gave the President. On the floor of the House, embarrassing amendments were prevented by entertaining a completely negative motion of Representative Connery, which cut out the more dangerous proposals of moderate alteration. In the Senate the bill was jammed through by aid of the conference and the clever move of following it up with the beer bill on which immediate action was deemed necessary and on which immediate action was generally desired.

The issue of veteran cuts came up again on the Independent Offices Supply bill towards the close of the session and the Administration was forced to compromise by returning about $100,000,000 of the $400,000,000 to $500,000,000 cuts it had made in veterans expenditures. A formal deal was consented to by the House Veterans bloc on June 9.

THE BEER BILL

This bill (H. R. 3341), Act of March 22, 1933, which had lingered on in the Senate for some time in the Seventy-second Congress followed the customary meteoric path of major legislation in the Seventy-third. Mr. Roosevelt, it will be recalled, used it to jam the economy bill through the Senate, and since repeal was already on the road and the wetter Democrats were in power, there was little doubt of its passage. The House voted 316-97 (for 238 D., 73 R., 5 F. L.; against 58 D., 39 R.) on March 14 and the Senate by 43-30 (for 31 D., 12 R.; against 13 D., 17 R.) on March 16—the day after the Senate approved the economy bill. Much was made of the revenue feature of the bill and undoubtedly the shortage of cash in the Treasury had something to do with the speedy way in which the stein was returned to the thirsty, but a general realization of the unworkability of prohibition underlay the Congressional debates. The bill was a compromise between the House and Senate features of the beer bill of the last session. Maximum alcoholic content was set at 3.2 per cent by weight—the House provision—but wine was included—the Senate provision. Protection was afforded dry states by a provision similar to the Reed bone dry amendment, prohibiting shipment into such states.

AGRICULTURAL RELIEF AND INFLATION

On March 22 the House by a vote of 315-93 (for 273 D., 38 R., 4 F. L.; against 24 D., 23 R., 1 F.L.), and on April 28 the Senate by a vote of 64-20 (for 48 D., 15 R., 1 F. L.; against 4 D., 16 R.) passed an act (H. R. 3835, Act of May 12, 1933) which we are classifying as a temporary or "recovery" measure but which made notable inroads on the supposedly permanent features of "rugged individualism." The bill itself centered about the domestic allotment provision of the Agricultural Relief bill discussed in the last session. The Secretary of Agriculture was empowered to compel higher prices for farm produce either by allocating production or through leasing land to withdraw it from cultivation. Costs of this farm relief were to be borne by a "processing tax" laid on the manufacturers of agricultural products. Refinancing of farm mortgages at 4½ per cent through issuance of not more than $2,000,000,000 of Federal bonds was also provided.

In some ways more important even than the bill itself was the "inflation" rider which accompanied it. Powers of (1) expansion of Federal Reserve credits by as much as $3,000,000,000, (2) issuance of up to $3,000,000,000 in treasury notes not secured by gold, (3) a possible 50 per cent devaluation of the gold content of the dollar and (4) the acceptance of $200,000,000 of silver in payment of war debts, were entrusted t the President. The latter factor explains to some extent the almos general Congressional acquiescenc in the bill. Inflationists, of whom there were many, thought the broa features of the bill and the libera views of the President who was t administer it made this a victory fo them. Conservatives patted themselves on the back because the President had "staved off" inflation b securing these powers which did no have to be forced. The Presiden held the key to the situation and fo a time kept his own counsel.

UNEMPLOYMENT RELIEF

Without roll call on March 28 the Senate and on March 29 the House passed the reforestation unemployment relief bill (S. 598; H. R. 3905) Act of March 31, 1933, authorizing the President to employ unappropriated public works funds to conduct works of a public nature in connection with reforestation. This was of importance as a speedy predecessor to the emergency relief bill.

GOLD REPEAL JOINT RESOLUTION

Another radical change came with startling ease. On May 29 the House passed (283-57; for 250 D., 28 R., 5 F. L.; against 9 D., 48 R.) and on June 3 the Senate passed (48-20; for 43 D., 4 R., 1 F. L.; against 2 D., 18 R.) the Gold Repeal Resolution (H. J. Res. 192) Act of June 5, 1933, which cancelled the gold clause in all Federal and private obligations, making them payable in legal tender. The bill was an administrative essential to a workable reflation scheme but the economics were questionable and the constitutionality doubtful. Loud were the Republican cries of "shameful" "a disgrace to the national honor," and so on, especially from representatives of security holding constituencies.

NATIONAL EMPLOYMENT SERVICE

On May 29, the Senate and on June 1, the House without roll call passed a bill (H. R. 4559) Act of June 6, 1933, which intelligent students of unemployment had demanded for years but which Mr. Hoover's obduracy had held up to the cost of the country and himself. The Wagner National Employment Service law provides for establishment of a national system in coöperation with state employment services and, where necessary, to initiate state employment services. An annual appropriation of $4,000,000, three-fourths of which was to be used as a grant-in-aid to state employment services on a 50-50 basis, was provided.

HOME-OWNER'S REFINANCING ACT

A House vote of 383-4 (for 279 D., 100 R., 4 F. L.; against 3 D., 1 R.) on April 28 and a Senate vote without roll call on June 6 passed the Small Home Owner's Refinancing Act (H. R. 5240), Act of June 15, 1933, which set up a $200,000,000 home-owners loan corporation, with authorization to issue $2,000,000,000 in bonds in exchange for mortgages. Maximum aid was limited to 80 per cent of a mortgaged property, not exceeding $14,000. Bonds were to be issued at 4 per cent guaranteed by the government; interest to be collected at 5 per cent from the home-owners on refinanced mortgages which must be amortized within fifteen years. Where mortgage holders would not permit refinancing, cash loans to a smaller percentage were authorized.

NATIONAL INDUSTRIAL RECOVERY ACT

Turning to the broader, more permanent features of the "reconstruction" program which was significant of the real underlying philosophy of the New Deal, the National Industrial Recovery Act (H. R. 5755), Act of June 16, 1933, is the most startling and best publicized piece of legislation. In title and in administration it has been regarded as a recovery act but in broad outline it falls into the reconstruction category, or at least that was the intent of the original drafters of the bill and seems likely to stand the test of administration best. The Recovery bill grew out of a movement of friends of labor for a national thirty-hour week (S. 158) as a means of employment. On April 17 Miss Perkins, the able Secretary of Labor, appeared before the House committee and sketched out a bill which would provide for the control of industry in a more general way. The House accepted the Administration's suggestion but in the Senate it was held up for some time by a revolt of Democratic members of the Finance Committee who, it was rumored, resented Roosevelt's administration of patronage, and also, as conservatives, resented various radical features of the bill, especially the clause for compulsory licensing of industry which they struck out. Chairman Harrison brought the dissenters back into the fold and the bill, more or less in the form desired by the Administration, passed the Senate on June 9, 57-24 (for 46 D., 10 R., 1 F. L.; against 4 D., 20 R.) and then went to conference.

Its major features can be but briefly sketched here. The part of most permanent importance provided for drafting of "codes" by industry to be approved by the Recovery Administration. Those codes represented a bargain with the government. The industry secured a privilege of making agreements, curtailing production, even setting prices under certain limitations; in other words, obtaining exemption from the anti-trust laws. In return, the industry cut hours of labor, accepted a certain minimum wage and made efforts to employ an increased number. Thus the government was able to establish labor legislation on a national scale. The second major feature of the bill provided the huge sum of $3,300,000,000 for public works, as a method of injecting life into the economic system. This measure was to be financed under the extraordinary budget but there was considerable discussion of income tax increases and other means of commencing amortization of public work costs. The bill finally carried provisions for financing of the bond issue at the rate of $220,000,000 a year by taxes on corporate net worth and corporation dividends, an increase in the gas tax and an extension of the special excise taxes of the last year.

MUSCLE SHOALS AND TENNESSEE VALLEY DEVELOPMENT

On April 25 the House passed 306-9 (for 284 D., 17 R., 5 F. L.; against 2 D., 89 R.) and on May 3, the Senate passed 33-20 (for 18 D., 14 R., 1 F. L.; against 3 D., 17 R.) the bill (S. 1272, H. R. 5081) Act of May 18, 1933, for which Senator Norris of Nebraska had fought for years, defying private power and insurance interests. It was partly a "thank you" for his support of Roosevelt but it was also to be an experiment ground for the fascinating social ideas in the mind of the President and his advisers. A Tennessee Valley Authority of three members was created to maintain and operate the Muscle Shoals property. It had power to acquire real estate, build dams, power houses, reservoirs, transmission lines and navigation projects; to unite power installations, to contract for fertilizers and explosives, and to finance its improvements through issue of bonds. The Authority was directed to build a dam at Cove Creek in Tennessee and to return 5 per cent of the gross receipts from power of the two dams to the states concerned, in a provision like that followed in Federal developments in the western states.

FEDERAL SECURITIES ACT

On May 5 the House without a roll call and May 8 the Senate in the same way passed the Securities Act (S. 875) modelled by Professors Frankfurter and Landis after the English Companies Act. Bank failures, stock crashes, Senate investigations, were all signs that this legislation had been too long delayed. Few doubts were expressed except in the camp of investment brokers, whose opinions were no longer respected. The act requires filing with the Federal Trade Commission and for investors the full information concerning security issues coming under Federal jurisdiction through the ma or interstate commerce. Full stat ments of discounts, of all factors c issuance of securities, detailed d scription of the business, etc., mus be included in a sworn statemen Even after the Federal Trade Com mission has approved the issue th liability of the issuing company fo misstatements remains.

RAILROAD REORGANIZATION

Without roll call the Senate o May 27 and the House on June passed the railroad reorganizatio bill (S. 1580; H. R. 550), Act o June 16, 1933, as a solution to a lon discussed problem. A Federal co ördination of transportation was se up to effect economies not at the ex pense of the wage earner. His de cision may be appealed to the Inter state Commerce Commission. Coor dinating committees from the rail roads were to be set up.

INVESTIGATIONS AND MISCELLANEOUS

Two noteworthy investigations were conducted at this session. One by the Senate Banking and Currency Committee secured much publicity in disclosing that J. P. Morgan and other wealthy figures had paid n income tax for the last year as a result of the capital losses provision Its publication of "preferred lists" of many notable political and business names to whom stocks had been issued at low rates was also heralded over the land. Ferdinand J. Pecora starred as prosecutor.

On June 1, the Senate voted an investigation of the toilet kit contracts for the Citizens Conservation Corps on which the President's secretary, Mr. Howe, seemed to have made an error. On June 2, Comptroller-General McCarl reported to the Senate on an investigation of the Federal Farm Board. In view of Mr. McCarl's ideas about independent corporations, the conclusion that the Farm Board had exceeded its powers was to be expected.

A House investigation of the Civil Service Commission's allotment of positions was voted on June 1. Judge

Louderback was acquitted by the Senate on May 24 by a vote of 45-34 (guilty 38 D., 6 R.; not guilty 12 D., 22 R.), eight less than the necessary two-thirds necessary for impeachment. Relief for bankrupt cities was passed without a record vote. Executive reorganization orders sent to Congress at this last moment were not acted upon and so became law. In ordinary matters, like appropriation bills, the legislative mill ground on as in the days before the New Deal.

FEDERAL LEGISLATION

By Frederic A. Ogg

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BANKING, CURRENCY AND SECURITIES

Emergency Banking Relief.—An act (H. R. 1491, Pub., No. 2, approved March 9, 1932) authorizes the President to control all transactions in foreign exchange, transfers of credit between banking institutions, and the exportation, hoarding, etc., of all gold and silver. The Federal Reserve Act is amended to empower the Secretary of the Treasury to require all persons to exchange for other forms of currency such gold bullion, coin or certificates as they may possess. Member banks of the Reserve system are forbidden to transact any business except as authorized by the government. When necessary to conserve the assets of any national bank, the Comptroller of the Currency may appoint a Conservator to assume full control until, and if, the bank may safely be reopened. Conditions for the reorganization of such banks are specified. Necessary additional capital funds may be provided by issuance of preferred stock which the Reconstruction Finance Corporation is authorized to purchase. If member banks have exhausted their acceptable assets and are still in need of further credit, the Federal Reserve system is authorized to make emergency advances.

Security Regulation. — This act (H. R. 5480, Pub., No. 22, approved May 27, 1933) seeks to protect purchasers of domestic and foreign securities from fraud and misrepresentation. All persons issuing or promoting the sale of securities in interstate commerce must, unless they are promoting securities which fall into certain exempted classes, file a registration statement containing full information with the Federal Trade Commission, which agency is given wide powers to control prospectuses, etc. Violators, prospective or actual, may be enjoined from further action, and promoters of fraudulent securities face the possibility of both civil and criminal action, the one by the purchaser, the other by the Attorney General. In order to protect the rights of holders of foreign securities, there is created a Corporation of Foreign Security Holders to operate under the Federal Trade Commission.

Repeal of Gold Clause.—A joint resolution (H. J. Res. 192, Pub. Res., No. 10, approved June 5, 1933) declares that all obligations which give the obligee a right to require payment in gold or any particular kind of coin or currency are against public policy. All obligations ''heretofore or hereafter incurred'' shall be discharged upon payment, dollar for dollar, in any currency which is legal tender at the time of payment.

Banking Regulation.—An act (H. R. 5661, Pub., No. 66, approved June 16, 1933) substantially changes the character of Federal control over American banking. Designed to strengthen banking by the elimination of unsafe practices, the act requires the Federal Reserve system to keep strict watch over all member banks in order to prevent them from engaging in any speculative business. Member banks are required to divorce themselves from all financial affiliates, and private banks are ordered to separate their banking and investment functions. A Federal Deposit Insurance Corporation is created to operate the system of bank deposit insurance which is a further feature of the act. The permanent Deposit Insurance Fund enjoins the obligatory participation of all member banks of the Federal Reserve system. Other banks may, by purchasing the necessary stock which amounts to 5 per cent of the total deposit liabilities, apply for membership in the fund. On the basis of this fund, all deposits of $10,000 or less are to be fully insured, and larger deposits will enjoy partial protection.

EMERGENCY RELIEF AND GOVERNMENTAL ECONOMY

Civilian Conservation Corps.—This act (S. 598, Pub., No. 5, approved March 31, 1933) establishes a Civilian Conservation Corps which is to be recruited from the unemployed for the purpose of carrying on public works in connection with forestation, prevention of forest fires, floods and soil erosion, plant pest and disease control, construction of paths, fire lanes, etc., in forests on the national and state public domain.

Federal Emergency Relief. — An act (H. R. 4606, Pub., No. 15, approved May 12, 1933) sets aside $500,000,000 from the funds of the Reconstruction Finance Corporation for purposes of emergency relief. A Federal Emergency Relief Administration is created and the funds are to be distributed under its direction in the following manner: Each state may receive from the Administration one-third of the amount which it expends for public relief, until one-half of the appropriated money has been allotted. The remainder is to be used for grants to the states when, and if, it appears that the aid, as above indicated, will not be sufficient to meet relief needs.

National Employment System. — An act (S. 510, Pub., No. 30, approved June 6, 1933) establishes in the Department of Labor a bureau to be known as the United States Employment Service. It is the function of this service to develop a national system of employment offices, a special veterans' service, a farm placement service, etc. Seventy-five per cent of the $4,000,000 a year, appropriated to finance the work, is to be distributed among the states, according to population, for the purpose of establishing and maintaining systems of public employment offices. States receiving such Federal funds must appropriate equivalent sums and must accept Federal supervision over the employment agencies. A Federal Advisory Council, composed of representatives of employers, employees, and the public is to assist in the formulation of policy and the supervision of its execution.

Economy in Expenditures.—An act (H. R. 2820, Pub. No. 2, approved March 20, 1933) authorizes the President to determine for all classes of cases the amount of veterans' compensation or pension to be allowed. Decisions and regulations governing such matters are final and not subject to review by any court or official. The purpose of the act is to provide a flexible and equitable means whereby a reduction in veterans' costs could be effected. The act also provides for salary reductions for all Federal officers and employees. Using the first six months of 1928 as a base, the cost of living index, to be computed every six months, is the basis on which salaries are to be reduced, provided that such reduction, irrespective of index changes, may not exceed fifteen per cent.

Home Owner's Relief. — An act (H. R. 5240, Pub., No. 43, approved June 13, 1933) creates a Home Owner's Loan Corporation to assist in the refinancing of home mortgages. Home mortgages and other real estate obligations will be acquired by the Corporation in exchange for 4 per cent non-taxable bonds, provided that such bonds will not in any individual case exceed 80 per cent of the real estate value, or a maximum of $14,000. Holders of mortgages exceeding these maxima must reduce them to that point or the exchange cannot take place. The mortgagor, who may not pay more than 5 per cent interest, is to be given fifteen years in which to amortize the principal and interest. If he is not in default, no payments on the principal are to be required for the first three years. If the mortgage-holder will not scale down the mortgage and accept the bonds, the Corporation may advance cash to the home-owner in an amount not exceeding 40 per cent of the property value. The Corporation is also empowered, in order to provide for a future and permanent home loan policy, to aid in establishing Federal Savings and Loan Associations, each of which becomes automatically a member of the Federal Home Loan Bank of the district.

AGRICULTURAL LEGISLATION

Farm Credit Act.—An act (H. R. 5790, Pub., No. 75, approved June 16, 1933) creates twelve Production Credit Corporations and an equal number of Banks for Coöperatives, one corporation and one bank being located in each city in which a Federal Land bank is located. The corporations are to assist in the development of Production Credit Associations organized to provide a mutual coöperative credit system for farmers. The banks for Coöperatives are to make loans to the associations. A Central Bank for Coöperatives is to provide rediscounting facilities, etc.

Agricultural Adjustment Act. — The Agricultural Adjustment Act (H. R. 3835, Pub., No. 10, approved May 12, 1933) declares it to be the policy of Congress to restore farm purchasing power by reestablishing agricultural prices on a level equivalent to that of a base period which is established for all commodities except tobacco as that of August, 1909-July, 1914. Consumer's interests are to be protected through the readjustment of farm production so that the percentage of retail expenditure for farm commodities will not be increased above that of the base period. The cotton crop is to be reduced in the following manner: Producers who are willing to reduce their 1933 production by not less than 30 per cent will receive from the Secretary of Agriculture a non-transferable option on an amount of cotton equal to that which will not be produced. This option may be exercised at any time before Jan. 1, 1934. The producer will pay for the cotton only the amount paid by the Secretary when, in pursuance of the act, he acquired at market price all cotton held by the Farm Board and other government agencies. If the producer does not wish to buy and resell the cotton, the Secretary may credit the producer with the difference, making the plan one in which the producer may receive the benefit on the anticipated increase in the value of the cotton which he has agreed not to produce. The Secretary may further make agreements with producers of "any basic agricultural commodity," specifically declared to be wheat, cotton, corn, hogs, rice, tobacco, and milk, for reduction of acreage or limitation of production and may provide for the rental or benefit payments in connection therewith. He may also make agreements with processors of and dealers in agricultural commodities and, in the interests of eliminating unfair practice, license all such persons.

Funds for these purposes are to be acquired by the levy of a tax upon the first processing of all commodities the production of which has been the object of a limitation agreement. The tax is to be at such a rate as to equal the difference between the current average farm price and a fair exchange value. The latter term is taken to mean the price "that will give the commodity the same purchasing power, with respect to articles farmers buy, as such commodity had during the base period."

Further aid to agriculture is provided by credits. Federal Land Banks may issue farm loan bonds to a maximum not exceeding $2,000,000,000, the funds to be used in making new farm loans or in purchasing farm mortgages. In no individual case may the amount invested in a farm mortgage exceed the unpaid principal, or 50 per cent of the value of the mortgaged land and 20 per cent of the improvements. Interest rates on outstanding or future loans is reduced to 4.5 per cent.

The final title of the act is not concerned primarily with farm problems, but with currency control. It attempts to provide credit expansion by authorizing (1) open market operations by the Federal Reserve system to a maximum of $3,000,000,000 in addition to government obligations previously held, (2) the issuance of United States notes in amounts not to exceed $3,000,000,000, and (3) the reduction of the weight of the gold dollar by not more than 50 per cent. The President may also remonetize silver by fixing the weight of the silver dollar in a definite ratio to the gold dollar.

NATIONAL RECOVERY

National Industrial Recovery Act.—This far-reaching act (H. R. 5755, Pub., No. 67, approved June 16, 1933) declares it to be the policy of Congress to remove obstructions to commerce, promote the organization of industry, maintain united action of labor and management, eliminate unfair competition, promote full utilization of the productive capacity of industry, increase consumption through an increase in purchasing power, relieve unemployment, etc. To attain these ends, the act authorizes the appropriation of $3,300,000,000 chiefly to be spent in a great public works program involving many diverse types of specified projects. The states are not required to make appropriations equal to the Federal aid which they receive, but the Public Works Administrator is limited in case of each project proposed by states, municipalities, etc., to aid equal to 30 per cent of the cost of labor and materials. The program is to be financed by a bond issue and by receipts from special taxes.

The industrial aspects of the act represent an attempt to secure the adoption by all trade and industrial groups of codes of fair competition, formulated if possible through voluntary agreement subject to governmental approval. The President is authorized to prescribe fair codes for groups unable to reach a voluntary agreement. When a code has become operative, a violation thereof constitutes ''unfair competition'' within the meaning of the Federal Trade Commission Act, and special penalties are provided. Moreover, the President is authorized, if it becomes necessary, to license business enterprises.

Foreign industrial competition may be controlled through powers conferred upon the President to alter the tariff on articles the importation of which seems to endanger the domestic producer. This alteration is not limited to tariff rate changes; the President may limit the maximum quantity of articles that may be imported.

Highly significant are the requirements that all codes shall incorporate certain features touching the position and rights of labor. Yellow-dog contracts are forbidden; the right of labor to organize and to bargain collectively is recognized, and employers are required to abide by the maximum hours and minimum rates of pay which have been approved by the President. The act remains in effect for two years.

MISCELLANEOUS

Muscle Shoals.—This act (H. R. 5081, Pub., No. 17, approved May 18, 1933) ends the prolonged controversy over the disposition of the Muscle Shoals property. There is created an administrative organization termed the Tennessee Valley Authority headed by a board of three members and charged with the task of developing the project. The Authority is to manufacture and sell fertilizer and fertilizer ingredients, to supply the government with nitrogen for explosives, and ''to produce, distribute, and sell electric power.'' In pursuance of the power program, the Authority may sell electricity to any state, state agency, municipality or individual, but it is declared to be the policy of the act to emphasize the production and supply of cheap power to domestic and rural consumers. The construction of the Cove Creek dam is authorized.

Railway Coördination. — An act (S. 1580, Pub., No. 68, approved June 16, 1933) establishes a Federal Coördinator of Transportation endowed with wide powers to further transportation efficiency. Railway lines are to be divided into three groups: eastern, southern, and southwestern.

In each group, regional coördinating committees will attempt to promote action looking toward elimination of duplication and a general increase in operating economy and efficiency. If voluntary action is not possible, the Coördinator is authorized to issue and enforce orders. The terms of the Interstate Commerce Act are widened to permit greater consolidation of lines

Philippine Independence.—An act (H. R. 7233, Pub., No. 311, approved January 17, 1933) authorizes the Philippine legislature to provide for a convention to draft a constitution for the future free commonwealth. After approval by the President of the United States, the constitution is thereupon submitted to a popular vote. If adopted, the new government is established and, at the end of ten years, American control is to be withdrawn. During this period, the Philippine government may collect specified export taxes on goods sent to the United States, and the United States is free to collect import duties on Philippine goods sent in excess of stipulated maximum quantities.

FEDERAL ADMINISTRATIVE COMMISSIONS AND EMERGENCY AGENCIES

By Lloyd M. Short

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The recovery program of the Roosevelt Administration brought into existence during 1933 a considerable number of new administrative units, some of which may become permanent additions to the structure of the National Government while others obviously are only temporary in character. In several instances the work of these new agencies is supplementary to the functions of the older administrative boards and commissions. Thus it is convenient and appropriate to describe the organization and activities of the two groups of services in the same section.

NATIONAL RECOVERY ADMINISTRATION

Creation.—On May 8 the President addressed the nation over the radio, reporting upon the measures for recovery already adopted and announcing new plans to give workers a fairer wage return, prevent cut-throat competition and unduly long hours for labor, and to encourage each industry to prevent over-production. Legislation embodying these new plans was presented to Congress a few days later. During the Congressional debate on the bill its provisions with respect to labor unions and the licensing of industry were the chief points of controversy. The National Industrial Recovery Act was passed June 13 and approved three days later. Title I of the Act (Industrial Recovery) with which we are here concerned declares it to be the policy of Congress among other things to promote coöperation among trade groups, to eliminate unfair competitive practices, to increase consumer purchasing power, to reduce unemployment, and to improve standards of labor. Trade groups are encouraged to present codes of fair competition which if approved by the President became binding under the provisions of the Federal Trade Commission Act. The President is empowered to prescribe codes for industries which fail to adopt one voluntarily, and if he deems it necessary, may require licenses of such industries. The right to bargain collectively through representatives of their own choosing is secured to labor in all codes, ''yellow-dog'' contracts are prohibited, and employers must comply with maximum hours and minimum wages prescribed by the President. Separate provision is made for the control of the oil industry, including the restriction of output.

Organization.—The Act gives to

the President full appointing power for the purposes of its administration and authorizes him to delegate his powers thereunder. In a public statement issued following his approval of the bill, President Roosevelt announced that the administrative organization to carry out its provisions would include a chief administrator and several deputies, a labor advisory board appointed by the Secretary of Labor, an industrial advisory board appointed by the Secretary of Commerce, and a consumers' advisory board. In addition to these officers and advisory boards, a special industrial recovery board of ten was created by executive order on June 16, and on June 21 a committee of 41 business men was set up as an advisory and long-range economic planning body. On Aug. 5 the President approved the recommendation of the NRA providing for the creation of a National Labor Board. Subsequently a Policy Board and a Compliance Board were organized. Other major offices in the organization are the general counsel, the chief economist, and the chief of public relations.

Personnel. — Major appointments to positions in the NRA include Hugh S. Johnson, administrator; Daniel C. Roper, Secretary of Commerce and chairman of the Special Industrial Recovery Board; Walter C. Teagle, chairman of the Industrial Advisory Board; Leo Wolman, Chairman of the Labor Advisory Board; Mrs. Mary H. Rumsey, chairman of the Consumers' Advisory Board; Sen. Robert F. Wagner, chairman of the National Labor Board, and Donald Richberg, general counsel.

Codes.—The immediate aim of the NRA was to get those industries employing the greatest number of workers under a code as quickly as possible. The first code to be submitted was that of the textile industry, which was filed on June 19 and put into operation on July 9. With varying degrees of controversy and delay, codes were ultimately agreed upon for most of the major industries, steel and coal causing the most difficulty. Pending the filing and approval of codes for particular trades the President issued a temporary blanket code to be effective from Sept. 1 to Dec. 31, 1933. Provision was made for modifications in this agreement upon application of particular industries. Announcement was made on Dec. 23 that a total of 225 codes were in operation or were awaiting final approval. The blanket agreement was extended for another four months on Dec. 20 in order to give time to secure codes for all industries which had not yet submitted them. By the end of August, Hugh Johnson, Recovery Administrator, estimated about 2,000,000 people had been reemployed as a result of the NRA. The American Federation of Labor estimated that $5,000,000,000 had been added to the Nation's purchasing power through the various phases of the recovery program. Evidence toward the close of the year, however, indicated a sharp drop in employment in some of the major industries. Organized labor gained over 1,000,000 recruits as a result of the insistence of the NRA upon the inclusion of the collective bargaining clauses in industrial codes. Threats of action in cases of non-compliance were followed by actual withdrawal of Blue Eagle insignia beginning in October. Counter threats of suits to test the validity of the Industrial Recovery Act were followed by a few test cases in Federal district courts and an adverse decision in Florida on Dec. 2.

RECONSTRUCTION FINANCE CORPORATION

Extension of Power.—An examination of the methods of financing the various aspects of the emergency recovery program will reveal that the Reconstruction Finance Corporation, established Jan. 22, 1932, has become vitally essential to that program. By acts approved June 10 and June 14, 1933, the Corporation was specifically empowered to make loans to and purchase preferred stock of insurance companies, and generally authorized to make loans to banks, building and loan associations, insurance companies, credit unions, and institutions under the Farm Credit Administration. Although originally capitalized at $500,000,000 the R F C capital has been expanded through emergency legislation to $4,575,000,000. Originally limited to one year, the life of the corporation was extended another year by executive order, and it is certain President Roosevelt will request Congress to continue this indispensable agency as long as there is need for a continuation of the recovery program.

Loans.—At the close of November the R F C reported total loans and advances since its establishment of $4,254,453,348 of which $314,469,467 was withdrawn or cancelled and $986,844,212 repaid. There remained $1,014,652,068 for borrowers. The following summary of advances as of Nov. 1 will reveal the extent to which the recovery program is financially dependent upon government credit made available through the R F C: monetary policies—$50,000,000 in notes issued to carry out policy of gold purchases to increase prices; NRA—$1,000,000,000 available for loans to banks at 3 per cent to be re-loaned at not more than 5 per cent to business; A A A—an early advance of $3,300,000 and a total of $300,000,000 authorized for cotton loans and operations in advance of processing tax receipts; Commodity Credit Corporation—$250,000,000 authorized for loans on cotton at 10 cents a pound and on corn at 45 cents a bushel held for future sale; Relief Administration—$500,000,000 authorized with $164,000,000 advanced; F C A—$111,000,000 advanced for crop loans, purchase of stock in regional agricultural credit corporations, and to the Land Bank Commissioner for loans to joint stock land banks and to farmers under the emergency farm mortgage act; Foreign Loans—$4,000,000 advanced to Russia to buy cotton and $50,000,000 to China to buy wheat and cotton; Drainage Districts—$50,000,000 set aside for refinancing of agricultural improvement districts; Home Owners' Loan Corporation—$325,000,000 authorized and $59,000,000 advanced for stock purchases in this corporation and in home loan banks; Deposit Liquidation Board—a division within the R F C whose plans call for freeing $1,000,000,000 in closed banks by loans on frozen assets; Federal Deposit Insurance Corporation—$50,000,000 of bank stocks purchased to strengthen their capital structure so as to become eligible for deposit insurance January 1, and another $50,000,000 authorized for the purchase of preferred stock in insurance companies.

FARM CREDIT ADMINISTRATION

Farm Board Abolished.—President Roosevelt issued an executive order March 27, under authority of the Economy Act, consolidating all of the Federal agencies extending credit to agriculture under a single Farm Credit Administration. The consolidation became effective May 27, 61 days after the order was issued. Subsequently, Congress in Title II of the Farm Relief Act approved May 12, 1933 (designated as the "Emergency Farm Mortgage Act of 1933") and in the Farm Credit Act approved June 16, 1933, gave statutory recognition to the new agency in providing additional loans for agriculture through existing channels, and in authorizing the establishment of two new types of banking and credit institutions.

Personnel.—J. C. Stone, chairman of the Federal Farm Board, resigned March 4, and was succeeded by Henry Morgenthau, Jr., former State Conservation Commissioner of New York and trusted adviser of the President on matters of farm relief. Morgenthau became the first governor of the Farm Credit Administration May 27, when the Farm Board officially went out of existence, and continued in that office until his appointment as Undersecretary of the Treasury. He was succeeded by William I. Myers, former professor of Cornell University, who as deputy governor had assisted in perfecting the organization of the Farm Credit Administration.

Organization and Powers. — The Farm Credit Act of 1933 authorized the governor of the Farm Credit Administration to organize and charter a Production Credit Corporation and a Bank for Coöperation and a Bank for Coöperatives in each of the twelve cities in which there is located a Federal land bank, the directors of the latter to serve *ex officio* as directors of the new institutions. The Production Credit Corporations, each with an initial capital stock of $7,500,000 subscribed for by the governor of the F C A and purchased from a revolving fund not to exceed $120,000,000 created by the transfer of unobligated balances from certain funds of the Reconstruction Finance Corporation and by direct appropriation from the Treasury, were created for the purpose of facilitating, by means of stock ownership equal to 20 per cent of the loans made, the formation and functioning of Production Credit Associations composed of ten or more farmers who are desirous of securing loans for general agricultural purposes. The Associations are subject to the control of the governor of the F C A with respect to incorporation, organization, amount of stock issued, and maximum size of individual loans. They may rediscount paper with the Federal Intermediate Credit Banks, but with no other banks or agencies without the specific approval of the governor.

The Banks for Coöperatives, each with an amount of capital stock determined by the Governor and subscribed for by him out of the revolving fund created under section 6 of the Agricultural Marketing Act of 1929, were established to provide loans to Coöperative Marketing Associations for any of the purposes set forth in the latter Act. A Central Bank for Coöperatives to be located in the District of Columbia also was established with capital stock purchased from the same fund which was authorized to grant either to Coöperative Associations or to the regional Banks for Coöperatives.

The title of the Farm Loan Commissioner was changed to that of Land Bank Commissioner, and three new commissioners were provided in the F C A, namely, Production Credit Commissioner, Coöperative Bank Commissioner, and Intermediate Credit Commissioner, each of whom was made appointive by the President with the consent of the Senate. Their duties are to be assigned by law or by the Governor of the F C A.

Title II of the Farm Relief Act of 1933, designed to relieve the farm mortgage situation and to prevent further farm foreclosures, amended the Federal Farm Loan Act to permit land banks to make direct loans to borrowers secured by first mortgages on farm lands and to issue farm loan aggregating $2,000,000,000 at a rate not to exceed 4 per cent—the interest to be guaranteed by the Government—for the purpose of making new loans or for purchasing mortgages or exchanging bonds for mortgages. This Act also provides for the liquidation of joint stock land banks and directs the Reconstruction Finance Corporation to lend $100,000,000 to the Federal Farm Loan Commission to be used in making loans to these banks during the process of liquidation. Further, the R F C is directed to lend the Farm Loan Commission $200,000,000 which may be used in making direct loans to farmers secured by first or second mortgages on property, including crops, for the purpose of reducing and refinancing existing mortgages, providing working capital for farm operations, or enabling farmers to redeem and/or repurchase farm property already foreclosed. Finally, the R F C is authorized to lend not to exceed $50,000,000 for the refinancing of agricultural improvement district indebtedness, such as drainage district bonds. The R F C is empowered to issue $300,000,000 additional in notes or debentures in order to carry out the purposes of this Act.

Operations.—Prior to Sept. 1 most of the efforts of the F C A were directed toward liquidating the stabilization operations of its predecessor, the Federal Farm Board. On March 21 Henry Morgenthau, Jr., new chairman of the Board, estimated that approximately $350,000,000 of the Boards original fund of $500,000,000 was lost through its purchase and sale of farm commodities, principally cotton and wheat. He further announced that the Cotton and Grain Stabilization Corporations would be abolished as soon as the Board's holdings could be disposed of. By the end of April all cash wheat and futures had been disposed of except that which Congress ordered given to the Red Cross. Coffee secured from Brazil in exchange for wheat was disposed of gradually under a monthly allotment plan.

The first regional unit of the F C A was organized at St. Louis in August under the supervision of a general agent. This and similar units subsequently organized in the other eleven land bank cities included the four credit institutions established to make loans to agriculture, namely, the Federal Land Banks, the Federal Intermediate Credit Banks, the Production Credit Corporations, and the Banks for Coöperatives. Plans also were made in August whereby the Federal Land Banks would handle applications for direct loans to farmers in immediate danger of foreclosure as well as its own first mortgage loans, and the force of land appraisers was substantially increased in order to act more quickly upon accumulated applications for loans. Efforts to alleviate the mortgage difficulties of farmers resulted in the extension of loans approximating $100,000,000 by the end of November. Five hundred thousand applications requesting loans amounting to $1,000,000,000 were received between May 12 and Dec. 1 with the number doubling each month after July. By Dec. 1 mortgage loans were being made at the rate of $3,000,000 a day.

FEDERAL HOME LOAN BANK BOARD

Development.—Substantial progress was made during the year in the development of a permanent national reserve system for home mortgage credit under authority of the Home Loan Bank Act approved July 22, 1932. All of the twelve regional Home Loan Banks were organized, ten of which were reported to be operating at a profit by October, 1933. Though building and loan associations in only seven states and the District of Columbia had clear statutory authority to join the system when the Act was passed, the necessary enabling legislation had been enacted in all of the 48 states at the end of the first year's operations. The chairman of the Board reported early in December a membership increase from 116 to 2026 during 1933, the latter number representing approximately 35 per cent of the estimated $8,000,000,000 of the total assets of all building and loan associations in the United States. Advances authorized by the twelve regional banks to their member institutions aggregated approximately $100,000,000.

Home Owners' Loan Corporation.—In response to the President's recommendation that legislation be enacted "to protect small home owners from foreclosure and to relieve them of a portion of the burden of excessive interest and principal payments incurred during the period of higher values and higher earning power" Congress passed the Home Owners' Loan Act, approved June 13, 1933, creating a Home Owners' Loan Corporation, with a capital stock of $200,000,000 subscribed by the Secretary of the Treasury from funds made available by the Reconstruction Finance Corporation and with authority to sell or exchange 18-year tax-exempt bonds, bearing interest at not to exceed 4 per cent, said interest to be guaranteed by the Government. The members of the Home Loan Bank Board were designated as directors of the new corporation, which was empowered for a period of three years: (1) to exchange its bonds for home mortgages up to $14,000 in each case; (2) to grant cash loans to cover tax assessments and repairs on property not otherwise encumbered up to 50 per cent of the value thereof, and (3) to grant cash loans not to exceed 40 per cent of the value of the property in cases where the mortgage holder refuses to accept the bonds of the corporation in exchange for the mortgage.

After signing the Act, President Roosevelt urged the holders of home mortgages to delay foreclosures until the Corporation could begin to function. Difficulty was experienced in getting individuals, banks, insurance companies, and building and loan associations to exchange mortgages for the bonds of the Corporation, particularly since the latter were guaranteed by the Government as to interest only. Furthermore, state laws frequently forbade building and loan companies to accept such bonds. The first loan under the new Act was granted Aug. 18. It was reported on Dec. 23 that $73,005,118 had been paid out on 25,403 loans up to Dec. 15 and that 919,391 applications amounting to $588,722,533 had been approved except for final details. Thirty-eight and five-tenths per cent of the total loans made were granted during the period Dec. 1 to 15. Of the total amount paid out, $72,377,269 had been granted through the exchange of the bonds of the Corporation. The average of all classes of loans was reported to be $2,874.

Federal Savings and Loan Associations.—The Home Owners' Loan Act of 1933 also vested authority in the Home Loan Bank Board to provide for the organization and operation of ''Federal Savings and Loan Associations'' to be established when and where they will not injure properly conducted existing local associations. Such associations automatically become members of the Federal Home Loan Bank in the district in which they are located. The Secretary of the Treasury was authorized to purchase not more than $100,000 of the shares of any one association, and $100,000,000 was appropriated from the Federal treasury for that purpose. Apparently not much progress has been made as yet in furthering the purposes of this section of the act.

Personnel and Organization.—John H. Fahey of Massachusetts was appointed chairman of the Home Loan Bank Board on Nov. 3 following the resignation of William F. Stevenson of South Carolina. The latter, however, continued as a member of the Board. Frank A. Chase of Miami, a former director of the Home Loan Bank at Winston-Salem, N. C., was appointed on July 3 as Director of the Field Service of the Home Loan Bank Board with special responsibility for organizing Federal Savings and Loan Associations throughout the country. Announcement was made early in August that branch offices of the Home Owners' Loan Corporation had been established in every state except Rhode Island.

FEDERAL POWER COMMISSION

Personnel. — George Otis Smith, appointed chairman of the Federal Power Commission in 1930 for a five-year term, relinquished the chairmanship on July 19 in order that President Roosevelt might designate Frank R. McNinch, Democrat and a Hoover appointee, as the head of the Commission.

Jurisdiction.—In a decision rendered March 30, 1933, U. S. District Judge Luther B. Way of Virginia, in the case of the Appalachian Electric Power Company, upheld the authority of the Federal Power Commission over hydro-electric plants located on non-navigable streams whose operation may affect navigable streams. Thus the Commission through the issuance of standard licenses to such power companies may determine the original cost of their plants for the purposes of possible recapture by the Government, and may regulate the cost of improvements, rate structures, and the issuance and sale of securities.

FEDERAL RADIO COMMISSION

Personnel. — Eugene O. Sykes, Democrat, Mississippi, the only surviving member of the original Radio Commission, was reappointed by President Roosevelt to membership for a six-year term ending Feb. 24, 1939, and was designated as chairman of the Commission.

Litigation.—In a decision of far-reaching importance the U. S. Supreme Court on May 8 overruled the District Court of Appeals in holding that the Federal Radio Commission was acting within the law and the constitution in depriving stations WIBO and WPCC of Chicago (Illinois having more than its quota of broadcasting channels) of their wave length and transferring same to station WJKS of Gary (Indiana being under-quota state). This decision had a dual significance in that it was the first instance where an order of the Commission was reviewed on its merits by the Supreme Court on appeal from the Court of Appeals of the District of Columbia, and that it upheld the constitutionality of the so-called Davis amendment to the Federal Radio Act of 1927 in directing the Commission to affect an equal distribution of broadcast facilities between the five radio zones into which the country was divided and between the several states within each zone.

FEDERAL RESERVE BOARD

Emergency Measures.—The history of the Federal Reserve Board during 1933 is closely interwoven with the promulgation and enforcement of emergency statutes and executive regulations pertaining to banking and currency, among the most important of which were: (1) the President's proclamation of March 5 declaring a national banking holiday, prohibiting the hoarding of coin and currency, and placing an embargo upon exports of gold and silver; (2) the Emergency Banking Act of March 9 and amendments thereto, approved March 24; (3) the President's order of March 9 providing for the gradual opening of the nation's banks and for the licensing of member banks of the Federal Reserve System; (4) the executive order of April 5 calling for the delivery of gold to reserve banks on or before May 1; (5) the President's order of April 20 taking the U. S. off the gold standard in world trade by prohibiting the export of gold and the earmarking of gold for foreign account; (6) the Joint Resolution of June 5 voiding the gold payment clause in private or governmental obligations; (7) the inflation amendment to the Emergency Farm Relief Act approved May 12; (8) the Banking Act of 1933, approved June 16; (9) the inauguration on Oct. 26 of the government's policy of purchasing newly mined gold through the R F C at prices fixed above world market quotations as a method of increasing commodity prices; and (10) the proclamation of the President on Dec. 21 announcing ratification of the international agreement fixing national quotas for silver, and authorizing the purchase and coinage of silver by the U. S. treasury.

The Emergency Banking Act of March 9 amended the Federal Reserve Act to permit Federal Reserve Banks to issue bank notes to the full face value of direct obligations of the U. S. held as security, or to 90 per cent of the estimated value of any paper acquired under provisions of the Reserve Act, authorized reserve banks to make advances to member banks on time or demand notes when such banks have no eligible paper for rediscounting, and also authorized reserve banks to make short time loans to individuals and corporations on promissory notes secured by direct obligations of the U. S. The new loans thus authorized are subject to regulations of the Federal Reserve Board. The amendment to this Act, approved March 24, authorized reserve banks to make loans during the emergency to non-member banks where such loans are backed by eligible security.

The inflation amendment to the Emergency Farm Relief Act of May 12 empowered the President to direct the Secretary of the Treasury and the Federal Reserve Board to permit the Federal Reserve Banks to carry on open-market operations in obligations of the U. S. or of corporations in which the U. S. is the majority stockholder, and to purchase and hold treasury bills or other U. S. obligations up to $3,000,000,000 in addition to those already held. It also empowered the Reserve Board, during the emergency, to increase or decrease the reserve balances required to be maintained against either demand or time deposits.

Open-Market Operations.—At the beginning of the year the Reserve Banks held $1,812,000,000 of Government securities or $751,575,000 more than in January, 1932. Because of general improvement in the banking situation it was proposed gradually to reduce the amount of "governments" held. However, open-market operations were resumed late in February. Following the passage of the inflation amendment to the Farm Relief Act mentioned above, the reserve banks at the suggestion of the President further increased their open-market operations, purchasing at the rate of approximately $22,000,000 for several weeks. This amount again was reduced to about $10,000,000 beginning in July but criticism from the NRA that the recovery drive was being hampered by lack of credit for industry led to an increased weekly rate of open-market purchases to $35,000,000 the last week in August which rate was maintained for two months, with a result that the Reserve Bank holdings increased to $2,375,000,000.

Banking Act of 1933.—The Glass banking reform bill passed the Senate on Jan. 25, after a protracted filibuster led by Senator Long of Louisiana in opposition to its provisions relative to branch banking, but failed to reach a vote in the House. The Steagall guaranty deposit bill continued to languish in the files of the Senate Banking committee. The authors of these bills, following conferences with the President, agreed in principle upon a single banking reform measure which was drafted by a subcommittee of the Banking Committee in the Senate. This bill passed the House without even a roll call vote on May 23, and the Senate on May 25. Differences over details of the deposit insurance system delayed conference committee action and a final vote, but both houses voted favorably on the conference report on June 13, and the bill was signed by the President three days later.

There are four major features of this Act, namely, authorization to member banks of the reserve system to establish branches in any state which gives a similar privilege to its own banks, provisions for strict supervision by the Federal Reserve Board of the relations between banks and holding companies and security affiliates, the banks to divest themselves of connections with the latter within a year, grant of broad powers to the Federal Reserve Board to restrict the amount of reserve credit extended by banks which may be used for speculative purposes, and provision for the insurance of bank deposits temporarily from Jan. 1 to July 1, 1934, and permanently thereafter through the medium of a Federal Deposit Insurance Corporation, whose management is vested in a board of directors consisting of the Comptroller of the Currency and two presidential appointees and whose capital stock is to be subscribed by the U. S. Treasury and participating banks.

Personnel. — Eugene Meyer, governor of the Federal Reserve Board since September, 1930, resigned in April and was succeeded by Eugene Black, formerly governor of the Federal Reserve Bank in Atlanta.

FEDERAL TRADE COMMISSION

Securities Act.—In a special message to Congress on March 29 the President urged the passage of legislation for Federal supervision of the sale of investment securities in interstate commerce in order to insure the investor full and complete information. Congress responded promptly to this recommendation, and the Securities Act of 1933 and the Corporation of Foreign Bondholders Act, 1933, was approved May 27. Title I of this Act (the Securities Act) requires the registration of securities with the Federal Trade Commission by the issuer as a condition to the lawful use of the mails or any other transportation or communication medium in interstate commerce for the transportation or sale of such securities. The Act specifies the information to be required in the registration statements, but the Commission may require additional information. The Commission may suspend the registration of a security issue whenever it concludes the registration statement contains any untrue statement of facts or omits to state any material fact. The Commission's orders are subject to review in the circuit courts of appeals. Suit may be brought on account of false registration statements against signers of the statement, directors of the issuing company, and every underwriter of the security. Penalties of a fine not to exceed $5,000 and/or imprisonment not to exceed five years attach to willful violation of the Act or the regulations of the Commission. The Act specifically states that the Commission is not empowered to pass on the merits of, nor to give its approval to, a security issue.

Title II of the Act, called the Corporation of Foreign Bondholders Act, provides for the formation of a "'Corporation of Security Holders'' with authority to take custody of foreign securities which are in default in order to protect the interests of the holders of such securities. Six directors are to be appointed by the Federal Trade Commission. This title becomes effective only upon proclamation of the President.

Regulations for administering the Securities Act were issued by the Commission on July 6, but no reference was made to the formation of the Corporation of Foreign Security Holders. New security issues estimated at $75,000,000 were registered with the Commission July 7. Despite the contentions of the Investment Bankers Association that the stringent requirements of the Act and the indefiniteness of its liability clauses are retarding legitimate business, Chairman Fletcher of the Senate Banking Committee announced Dec. 12, after a conference with the President, that if any changes were made they would be aimed at strengthening rather than weakening the law.

Commissioner Humphrey Removed.—Following several weeks of controversial correspondence, President Roosevelt on Oct. 7 notified William E. Humphrey of his removal as a member of the Federal Trade Commission. Humphrey resisted this removal, contending that the Federal Trade Commission Act authorized the President to remove members of the Commission only in case of inefficiency, neglect of duty, or malfeasance in office, whereas in this instance the only issue was disagreement as to commission policies. The Commission on Oct. 9 by formal resolution took cognizance of Humphrey's removal, and the Comptroller General on Nov. 11 ruled that he was no longer entitled to the salary of a member of the Commission. The filing of a suit in the Court of Claims, as threatened by Humphrey, may lead to a decision as epoch-making as that of Meyers *v.* U. S. in interpreting the removal power of the President. Charles H. March, Republican, was designated by the Commission as its chairman at the beginning of the year. Edgar McCullock, in charge of the Commission's investigation of the financing of public utilities for the past four years, died in January. President Roosevelt appointed James M. Landis of Harvard University, who had assisted in writing the Securities Act, to the vacancy caused by McCullock's death, and George C. Mathews, Republican of Wisconsin, to the place vacated by the removal of Humphrey.

INTERSTATE COMMERCE COMMISSION

Reorganization Proposed. — The long awaited report of the National Transportation Committee whose chairman, Calvin Coolidge, died before its work was completed, was made public Feb. 14. Highlights of the report were the proposals for railroad consolidation looking ultimately toward a single national system with regional divisions, internal reorganization of the I C C, retroactive repeal of the recapture class, Federal regulation for all forms of transportation, and the abandonment of valuation as a basis of rate-making in favor of permitting a reasonable profit based upon costs of efficient operation. Alfred E. Smith in a supplementary report urged the abolition of the I C C and the transfer of its functions to a cabinet department. As a part of the President's economy program studies were made by a group of advisers early in the year looking toward the creation of a new transportation division in the Department of Commerce which would assume all of the purely administrative duties of existing agencies in this field, leaving the I C C its quasi-judicial and legislative duties. A report of this nature was submitted to the President April 11 but no further action was taken.

Recapture Clause Repealed.—The Emergency Railroad Transportation Act, approved June 16, 1933, repealed retroactively the recapture clause of the Transportation Act of 1920. The Commission on July 13 vacated twenty orders against railroads for recapture of excess earnings and on July 16 payments were begun to return $9,993,948 paid into the revolving fund by the roads plus $3,735,720 of accumulated interest.

Railroad Bankruptcies.—The Emergency Bankruptcy Act approved March 3 permits railroads, without the costs and the objectionable features of a receivership, to obtain a readjustment of debts and reorganization if needed with the sanction of the court and under the supervision of the I C C. A number of roads have taken advantage of the new law during the year.

Rail Rates.—Acting on a petition presented Jan. 25 by five national organizations representing the agricultural, coal, and lumber industries, for a general downward revision of freight rates, the Commission on Aug. 5 in a 7 to 3 decision held the existing rate structure to be reasonable in the light of existing conditions and refused to order a blanket reduction as requested. However, surcharges promulgated on Jan. 4, 1932, as an emergency measure and continued by supplementary order of the Commission to Sept. 30, 1933, were abandoned, thus automatically reducing the Nation's freight bill by approximately $100,000,000. Passenger rates were reduced drastically by western roads effective Dec. 1.

Consolidations and Holding Companies. — The Emergency Railroad Transportation Act of 1933 broadened the Commission's power to permit or prevent consolidations or other forms of joint control, and gave the Commission authority to restrict holding-company control by requiring that stock be deposited with a trustee.

FEDERAL COORDINATOR OF TRANSPORTATION

Establishment. — An emergency program for rehabilitating the Nation's railroads was presented by the President in a special message to Congress on May 4. Considered as an important part of the Administration's recovery program the bill embodying the President's recommendations was quickly passed and was approved June 16. An amendment agreed to by the President barring any reduction in employment or in pay served to remove one of the chief obstacles to its passage. The Emergency Railroad Transportation Act created the office of Federal Coordinator of Transportation, which might be filled by appointment of the President with the consent of the Senate or by the President alone from the membership of the I C C. Provision also was made for three regional coördinating committees. The coördinating committees, composed of five members selected by the roads and two appointed by the Coördinator, are directed to encourage voluntary action by carriers in eliminating duplication of service, permitting joint use of terminals and trackage, and avoiding other wastes. When unable to secure voluntary action they may make recommendations to the Coördinator who is empowered to issue orders. Machinery for the settlement of labor disputes is set up under the supervision of the Coördinator, and the latter also is directed to investigate and to report to the President and Congress through the I C C methods of improving transportation conditions. The carriers are assessed $1.50 per mile per annum to pay the expenses of the Coördinator. Orders issued by the Coördinator are subject to review by the I C C.

Activities. — Joseph B. Eastman, colorful member of the I C C, was chosen by the President as Federal Coördinator of Transportation. The principal activities of this office since its creation have been: (1) securing an agreement between rail and labor executives to a continuation of the 10 per cent wage cut to June 30, 1934, and the consequent withdrawal by the former of a demand for an additional 12½ per cent cut; (2) initiating a nationwide study of transportation problems; (3) securing reductions in the salaries of railroad presidents to not more than $60,000; (4) securing an agreement between rail and water carriers to end their destructive competition through stabilization of rates; (5) further studies looking toward regional consolidations; and (6) encouraging railroads to coöperate in the industrial recovery program by the adoption of liberal labor policies and the purchase of new materials from funds advanced in large part by the Government.

UNITED STATES SHIPPING BOARD

Board Abolished.—By an executive order issued on June 10, 1933, under authority of the Economy Act of March 20, President Roosevelt abolished the U. S. Shipping Board and its subsidiary, the Merchant Fleet Corporation, effective Aug. 10, and transferred their functions to the Department of Commerce.

Investigation.—The sale of government-owned vessels, the grant of construction loans by the Shipping Board, and the award of ocean-mail contracts by the Post Office Department were subjected to investigation by a special Senate Committee under the chairmanship of Senator Black of Alabama during September and October. Testimony presented at the hearings of the committee tended to show that certain shipping companies had been particularly successful in purchasing government lines at very low prices and in securing construction loans despite their apparent inability to operate with financial success.

TENNESSEE VALLEY AUTHORITY

Creation. — Backed by President Roosevelt, the Tennessee Valley Authority Act of 1933 was approved May 18, 1933, thus successfully terminating Senator Norris' twelve-year campaign to secure government operation of Muscle Shoals. This Act creates a corporation styled the Tennessee Valley Authority, with a board of directors of three members, appointed for 9-year terms by the President with the advice and consent of the Senate, and removable by concurrent resolution of Congress. The purposes of the Act are stated to be: (1) to maintain and operate U. S. properties in the vicinity of Muscle Shoals, Ala.; (2) to improve navigation in the Tennessee River, and (3) to control the destructive flood waters in the Tennessee and Mississippi River basins. Surplus power may be sold, preferably to state and local governments or to non-profit coöperative associations. If sold to private companies, the profit to be derived from resale thereof is made subject to regulation by the Authority. For construction purposes, the corporation may issue serial bonds not exceeding $50,000,000 backed by the credit of the U. S.

In establishing a broad policy for power development the Authority issued a public statement Aug. 24 in which it declared that the generation and distribution of electric power is a public business and that the interests of the public must prevail against the interests of privately owned power companies. A million dollar corporation known as the Electric Home and Farm Authority was created by executive order on Dec. 19 to finance and stimulate the sale of electrical appliances to power users in homes and on farms in the Tennessee Valley. The board of directors of this corporation consists of Arthur E. Morgan, chairman, and Harcourt A. Morgan and David E. Lilienthal, directors of the Tennessee Valley Authority.

AGRICULTURAL ADJUSTMENT ADMINISTRATION

Establishment.—Though the Agricultural Adjustment Administration is a part of the Department of Agriculture it constitutes an important unit in the emergency administrative structure charged with carrying out the national recovery program, and consequently should be included in this section. President Roosevelt in a special message dated March 16 presented in detail the provisions of a farm relief bill designed to reestablish the farmers' pre-war purchasing power by effecting a balance between the production and consumption of agricultural commodities. Frankly labeling the new plan "a new and untrod path," the President urged that the economic plight of the farmer justified the trial of new methods. Unlike most of the emergency legislation, the farm bill encountered strenuous opposition, particularly in the Senate, and its progress was impeded by disputes over commodities to be included, by a demand for a cost-of-production guarantee, and by the attachment of an inflation amendment. Ultimately, however, the bill as amended passed both Houses by large majorities and was approved May 12.

The agricultural credits and inflation sections of the Emergency Farm Relief Act have been explained elsewhere. The agricultural adjustment section recognized the need for immediate relief for the cotton grower, facing a world carry-over of 12,000,000 bales, by authorizing the Secretary of Agriculture to contract with such growers whereby in exchange for an agreement to reduce productions at least 20 per cent below that of 1932 they would receive options on cotton purchased by the Secretary. All governmental agencies, except Federal Intermediate Credit Banks, were ordered to sell their cotton holdings to the Secretary at a price not exceeding the market price and the R F C was directed to advance the necessary funds. The plan may be employed again in 1934, and the Secretary is instructed to dispose of all cotton by March 1, 1936.

Part 2 of this section empowers the Secretary to enter into voluntary agreements with producers of certain basic agricultural commodities named in the Act for the purpose of reducing production, giving rental or benefit payments therefor in such amounts as he deems fair and reasonable. He may also enter into marketing agreements with associations of producers and with processors, such agreements being exempted from the anti-trust laws. For the purpose of providing rental or benefit payments, the Secretary may impose taxes upon the first processing of a commodity, the rate to be such as to approximate the difference between the current average farm price for the commodity and its fair exchange value. Finally the Secretary is authorized to license processors' and producers' associations and to suspend or revoke such licenses.

Organization and Administration —The Act authorizes the Secretary to appoint such officers and employees as are necessary for its enforcement and also to establish state and local committees and agencies to carry out its provisions. An Agricultural Adjustment Administration was set up in the Department of Agriculture. On May 13 Secretary Wallace announced the appointments of George N. Peek of Moline, Ill., as chief administrator and of Charles J. Brand of Washington as co-administrator. Brand resigned Sept. 18 to resume his full-time duties as executive secretary of the National Fertilizer Association, his connection with the latter having caused some criticism. Reported differences between Peek, chief administrator, and Assistant Secretary Rexford G. Tugwell over administration of codes and marketing agreements led the former to accept a transfer to the headship of a new agency designed to assist in finding foreign markets for American agricultural products on Dec. 7. Chester C. Davis of Montana, chief of the production section of the A A A, was named as farm administrator by Secretary Wallace.

Summarizing the results of the agricultural adjustment program, it was reported on Dec. 25: (1) that payments to farmers of $110,000,000 through a processing tax on cotton and advances of $200,000,000 in loans of 10 cents a pound on cotton held for future sale had made possible the destruction of about 10,400,000 acres of the 1933 crop; (2) that approximately $102,000,000 would be paid to wheat farmers through a processing tax in exchange for a reduction in wheat acreage of about 8,000,000 acres; (3) that $31,000,000 had been paid to farmers for 6,200,000 pigs and 220,000 sows to reduce the pork surplus, such of this as could be processed having been distributed through the Federal Relief Administration; and (4) that commitments had been made to lend up to $150,000,000 at 45 cents a bushel on corn held on farms. It was estimated that the benefits from processing taxes had added $300,000,000 to the 1933 farm income and that higher commodity prices would add another $1,257,000,000. A Commodity Credit Corporation was organized in October with a capital stock of $3,000,000 and with authority to borrow from the R F C to make advances on cotton and corn held for higher prices. Demands of five midwest Governors in November for a price-fixing program and the licensing of producers were rejected by the Administration.

FEDERAL EMERGENCY RELIEF ADMINISTRATION

Direct Relief.—In his unemployment relief message to Congress on March 21, the President recommended a continuation of financial aid to the states for direct relief and the establishment of the office of Federal Relief Administrator to examine requests for funds and to investigate the efficiency and wisdom of their use. This recommendation of the President was carried out through the passage of the Federal Emergency Relief Act, approved May 12, 1933, which created the Federal Emergency Relief Administration in charge of an Administrator appointed by the President with the consent of the Senate. From a fund of $500,000,000 secured through the R F C, $250,000,000 was authorized for grants to the states equal to one-third of the amount expended for relief by such states and their subdivisions, and the balance was to be used for direct grants to the states on the basis of need for relief without regard to state expenditures. The last of the $300,000,000 voted by Congress in 1932 for emergency relief loans to the states was expended on May 29 and the relief division of the R F C was abolished in favor of the new Administration. Just a few days earlier President Roosevelt had appointed Harry L. Hopkins of New York as Relief Administrator. In an effort to force the state and local governments to assume their share of the relief load the Administrator was slow to make direct grants from the second $250,000,000. It was reported Dec. 25 that the total amount advanced by the R F C upon certificates from the F E R A was $272,388,005. A Federal Surplus Relief Corporation was created by executive order Oct. 1 to serve as a purchasing agent for the F E R A. Arrangements for the purchase of 11,500,000 bushels of wheat, the warehousing of 19,000,000 pounds of butter, the distribution of 55,000,000 pounds of pork, and approval of the purchase of 12,000,000 dozen eggs and 10,000,000 tons of coal were reported at the close of the year.

FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS

Creation.—In addition to his proposals for a civilian conservation corps, and grants to the states for direct relief, the President recommended in his message of March 21 that Congress give consideration to a broad public works program. Detailed suggestions for such a program were outlined in another message on May 17. This phase of the chief executive's recovery program was incorporated as Title II in the National Industrial Recovery Act, approved June 16, 1933, which authorized the President to create a Federal Emergency Administration of Public Works, in charge of an Administrator designated by him. The Administrator, under the direction of the President, is ordered to prepare a comprehensive program of public works including highway construction and repair, conservation of natural resources, low-cost housing and slum clearance project, self-liquidating projects, construction and completion of hospitals, naval and army construction, and any projects of the character generally carried on by governmental authorities in the public interest. To hasten reemployment, the President was authorized to make outright grants to public bodies up to 30 per cent of the cost of labor and materials used. The Act specified that not less than $400,000,000 was to be expended for highway construction through grants to the states and not less than $50,000,000 for national forest and park roads and trails, and roads through Indian reservations or public lands. A total appropriation of $3,300,000,000 was authorized for the public works program of which not to exceed $100,000,000 might be allocated by the President to cover expenditures in carrying out the Agricultural Adjustment Act and the functions of the Farm Credit Administration. The Secretary of the Treasury was authorized to borrow such amounts as were needed under the Second Liberty Bond Act, and a series of new tax levies were included to assist in financing the program.

Organization.—It was announced June 13 that Col. George R. Spalding of St. Louis had been selected as Administrator of Public Works, In a statement issued on June 16 after signing the N I R A, however, the President announced that the public works program would be temporarily conducted by Col. Donald H. Sawyer as administrator and a special board consisting of the Secretary of the Interior as chairman, the Secretaries of Commerce, Agriculture, War, and Labor, the Attorney General, and the Director of the Budget. Differences of opinion soon developed within the board as to whether the program should be vigorously carried forward or should be curtailed, and whether a state or regional field organization should be established. On July 8 the President announced the appointment of Harold L. Ickes, Secretary of the Interior and chairman of the special public works board, as Public Works Administrator. Ickes was reported to be opposed to curtailment of the program and an advocate of the regional field organization. The appointment of 10 regional advisors and 48 state advisory boards was announced late in July.

Loans and Grants.—The first allotments from the $3,300,000,000 public works fund to be approved by the board were $400,000,000 for highway construction, $65,000,000 for Federal buildings and $238,000,000 for naval construction. An interest rate of 4 per cent on loans was fixed by the board on July 1. Delays were encountered in setting up the field organization and in securing applications for loans. Disagreements within the board resulted in further delays. Careful scrutiny of projects recommended by state advisory boards led to charges of unnecessary red tape. However, it was reported on Dec. 28 that all but $143,966,905 of the total appropriation of $3,300,000,000 remained unallotted. A decision reached in November to advance funds to railroads for repairs served to increase allotments. The Administrator estimated at the close of the first six months of the program that approximately 5,000,000 persons had been reemployed through agencies financed by the public works fund.

CIVIL WORKS ADMINISTRATION

With surprising suddenness the Administration announced Nov. 8 that $400,000,000 would be allotted from the public works fund in order to set up a Civil Works Administration to provide work for 4,000,000 men during the winter months. Harry L. Hopkins, head of the Federal Relief Administration, was designated as Civil Works Administrator. This plan, apparently, was devised as an emergency relief measure to insure immediate re-employment pending the initiation of actual work on approved public works projects. Allotments on approximately $150,000,000 monthly from Nov. 15 to Feb. 1 were planned, continuation of this phase of the program beyond that date to depend upon Congressional appropriations. It was reported Dec. 13 that the President expected to recommend the continuation of the civil works administration until spring, with a gradual tapering off between March 1 and May 1.

EMERGENCY CONSERVATION WORK

Conservation Corps. — The Unem-
loyment Relief Act approved March
1, 1933, authorized the President to
mploy citizens in the construction,
aintenance, and carrying on of
vorks of a public nature in connec-
on with the reforestation of pub-
ic lands in the U. S. Under this
aw, a Civilian Conservation Corps
vere recruited, numbering about
00,000 by mid-July. These men were
istributed among several hundred
amps throughout the country and
vere employed in the prevention of
orest fires, in flood control, in soil
erosion projects, in plant disease and insect pest control, and in the construction of paths, trails, and fire lanes in national parks and forests. Robert Fechner, director of Emergency Conservation Work (an office created by executive order on April 5) reported to the President on Dec. 25 that the Corps had, among other things, built 12,671 miles of forest trails, 68,000 erosion dams, and 4,229 bridges and had planted 25,000 acres with trees. In addressing members of the Corps at Camp Meriwether in Georgia President Roosevelt announced his intention to continue the project for another year.

THE SUPREME COURT AND CONSTITUTIONAL LAW

By Thomas Reed Powell

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COURT ALIGNMENTS

Few, if any, of the cases decided
y the Supreme Court during the term
eginning in October, 1932 and end-
ng in May, 1933 can be deemed of
ar-reaching permanent significance.
here were but three five-to-four de-
sions, and only one of these involved
constitutional question. This was
urnet *v.* Wells (289 U. S. 670) in
hich Justices Van Devanter, Mc-
eynolds, Sutherland and Butler dis-
greed with the ruling that the
nited States could tax the creator
f an irrevocable trust established
rior to the statute the income de-
oted by the trust instrument to the
ayment of premiums on policies of
nsurance on the life of the creator.
hree of these Justices dissented in
nother case in which Justice Butler
id not sit. This held that the In-
erstate Commerce Commission was
ot under a clear duty to fix specific
aluations of the interests of one rail-
oad in property owned by another.
oubtless Justice Butler would have
oined in the dessent had he partici-
ated.

On the other hand, there were five
ases in which Justices Brandeis,
tone and Cardozo dissented. Two
vere cases which declared taxes un-
constitutional. One was a case holding that the Transportation Act did not confer upon the Interstate Commerce Commission power to order an extension of tracks to serve new territory. One was a case in which the majority sustained a lower Federal court in declining to take jurisdiction of a stockholders' suit to compel restoration of bonuses. In five other cases Justice Stone dissented, joined in two by Justice Brandeis and in three by Justice Cardozo. In eleven cases, there were six dissents by Justice McReynolds, eight by Justice Butler, and three by Justice Sutherland. In one of these cases Justice Roberts joined Justice McReynolds in dissent, and in another Justice Brandeis joined Justice Butler. Other unusual alignments appeared in two cases, in one of which the dissentients were Justices Butler, Stone and Cardozo and in the other Justices Hughes, Van Devanter and Cardozo.

Chief Justice Hughes dissented only three times, and Justice Roberts only twice. It is apparent that they still hold the balance of power in the court. Whenever they agreed with each other, they helped to compose a majority. This means that either one of them can tip the scales in favor of what we may loosely call a conservative decision, but that it takes both of them to secure a majority for a liberal decision. This distinction of conservative and liberal over-simplifies the problem, but roughly it is true enough to say that the court now consists of three Justices to the left of center, four to the right, and two near the center, with the Chief Justice somewhat to the left of Justice Roberts. That in time of stress, these two can move to the left is evident from the decision in the Minnesota Stay-Law Case, decided in January, 1934, which sustained a moratorium on the foreclosure of mortgages, over the vigorous dissent of Justices Van Devanter, McReynolds, Sutherland and Butler. Not until this decision did we have any basis in contemporary decisions for anticipating how our recent unprecedented legislation is likely to fare when it comes before the court. The contests of the preceding term were tame, and only a few of them invite recital in a cursory review of the work of the year.

DECISIONS ON JUDICIAL ACTION

Scottsboro Case. — In the famous Scottsboro Case (Powell *v.* Alabama, 287 U. S. 45), the convictions that had been sustained by the state supreme court were reversed by the United States Supreme Court on the ground that the defendants had not been given a fair opportunity to secure counsel to prepare their defense and on the further ground that the trial judge had not made an effective appointment of counsel. Other issues raised in the case were left unconsidered, but the surrounding circumstances of the trial were reviewed and given weight in determining that the opportunity to secure counsel had not been adequate. Justice Butler, who is rather likely to be on the side of the defendant when the court is divided on the propriety of modes of prosecution, wrote a dissenting opinion in which Justice McReynolds concurred. The minority concede that denial of adequate opportunity to secure counsel and to prepare the defense should be deemed a denial of due process of law, but they insist that no such denial appears from th record. They object to the furthe ruling that the trial judge denied du process by not making an effective ap pointment of counsel, on the groun that this was not properly before th court and for the reason that the ru ing extends Federal authority into field hitherto within the control o the states.

Great Northern-Sunburst Oil Case —In Great Northern R. Co. *v.* Sun burst Oil & Ref. Co. (287 U. S. 350 there was called in question the actio of the Montana supreme court whic held, in deference to an earlier dec sion, that a shipper could recover th difference between higher rates pai under schedules established at th time of shipment and lower rates late fixed upon complaint by the shippe but which announced that this holdin would not be followed in cases arisin after its declaration. The Suprem Court held that the state court wa within its proper field in interpretin the state statute as prescribing tha rates valid at the time might in appro priate proceedings have that validit destroyed so that the newly fixed rate would be applicable to prior ship ments, and that the application o such an interpretation is not a offense against due process because i is accompanied by an announcemen that a contrary interpretation will b applied to future transactions. I what the state court does is proper, th propriety does not evaporate becaus the court says that it will not do i again.

Martial Law.—The power of th Federal courts to enjoin the Governo and other state officers, civil and mil tary, from enforcing military an executive orders restricting the pro duction of oil was affirmed in Sterlin *v.* Constantin (287 U. S. 378). Th Governor had declared martial la while the issue of the constitutionalit of the orders of a Texas commissio was before the Federal courts and temporary injunction had bee granted against them. Chief Justic Hughes recognizes the wide and unre viewable discretion that belongs to th chief executive of a state in determin ing whether to declare martial law but he holds that this discretion does not include unlimited power to attempt to regulate by executive order the lawful use of private property. For such orders there was declared to be no military necessity in the particular case. Granting that the Governor is not to be controlled in calling out the troops, "the allowable limits of military discretion, and whether or not they have been overstepped in a particular case, are judicial questions."

"Declaratory Judgment."—From time to time in recent years, Supreme Court opinions have contained intimations that the proceeding known as the "declaratory judgment" is not a "case or controversy" within that requisite to the exercise of Federal judicial power. Now, however, in Nashville, C. & St. L. R. Co. *v.* Wallace (288 U. S. 249), the court holds that such proceedings initiated in state courts can be reviewed by the Supreme Court on appeal, where there are adversary parties and an adjudication of a real controversy between them. Nothing in the opinion indicates that the character of case or controversy becomes established only at a stage subsequent to the initiation of the declaratory judgment proceeding or that the decision is confined to proceedings in state courts. It is a reasonable inference that a Federal Declaratory Judgment Act, adequately restricted, might now meet the approval of the Supreme Court.

DECISIONS ON STATE POLICE POWER

Motor "Contract-Carrier." — For a number of years various states have endeavored to deal with the "contract-carrier" by automobile on the highways and various efforts have been scotched by the Supreme Court because in one way or another they sought to turn private carriers into common carriers. That pitfall was avoided by the Texas statute sustained in Stephenson *v.* Binford (287 U. S. 251) which required permits for contract carriers and subjected them to the prescription of minimum rates which must not be less than those fixed for common carriers for the same sort of service. Thus the contract carrier was prevented from getting business by undercutting common carriers. In as much as the permit was not to be given to the contract carrier if the proposed operation would in the opinion of the commission impair the efficient public service of common carriers, the contract carrier necessarily faces the possibility of extinction. All these requirements were held to be intimately related to the conservation of the public highways and therefore valid. A provision requiring contract carriers to give security for the safe carriage of cargoes was evidently thought to raise a more serious question, which was left unanswered because not necessarily involved in the particular case.

Automobile Owner Liability. — Power over the highways was not explicitly adduced in Young *v.* Masci (289 U. S. 253) which sustained a New York statute imposing on owners of automobiles liability for injuries caused by the negligence of persons driving the machine with the owner's consent, express or implied. The loan of the car was made in New Jersey by the New Jersey owner without restriction on the place of use. The New Jersey law did not impose liability on the owner, but the New Jersey court applied the New York statute to impose liability for the New York injury. The Supreme Court held that this was proper and that the non-residence of the owner gave him no immunity for acts caused by his car in New York. For this there were cited cases not having to do with highways.

Utilities Rates. — It has been anticipated that some of the Justices who insisted on giving preponderant weight to reproduction cost in estimating the so-called "fair value" of utilities as a basis for determining the constitutionality of rates might take a different attitude when reduced prices made that standard less advantageous to the utilities. We find Jusices Butler and Sutherland dissenting in Los Angeles G. & E. Corp. *v.* Railroad Com. (289 U. S. 287) which sustained rates fixed by the commission. The facts are too involved to be given. The majority looked at the results in a lump and found them satisfactory, holding that niggardliness in some respects could be counterbalanced by generosity in others. The fact of lower prices was given considerable weight in finding the balance proper. The minority seemed to think that the commission should have been held to a duty to follow Supreme Court rulings in every detail, and that departures could not be forgiven of a judicial estimate that the result of the whole was to fix a value not unfair. They would have sent the case back to the court below for more careful and detailed consideration by a master.

DECISIONS ON STATE TAXATION

Chain Stores.—A variant of the progressive tax on chain stores previously upheld came before the court in Liggett Co. *v.* Lee (288 U. S. 517) and was condemned by a vote of six to three. The court re-affirmed the power to increase the tax on each store as the total number of stores increased, but found no basis for making the tax on each store higher when the stores were located in more than one county than when they were not. The dissent went on the ground that the power over corporations was such as justify these differentiations and that they were intrinsically justifiable as an attempt to impose higher burdens on chains likely to be nationwide than on those confined to relatively narrow limits.

Immunities to Lessees of Indian Lands.—A further tendency to restrict the immunities hitherto accorded to lessees of Indian lands appears in Indian Ter. I. Oil Co. *v.* Bd. of Equalization (288 U. S. 325) which sustained a property tax on oil derived from operations under leases of Indian lands where such oil was intermingled in tanks with other oil from concededly taxable sources and where the royalties due the Indian lessors had already been paid. This admixture and prior payment of royalties were the only distinctions between this case and an earlier one that decreed exemption. The distinctions seem technical rather than substantial. The earlier case may still be followe on its own facts, but it clearly wi be thus restricted so long as th present court continues of its presen mind.

State franchise taxes questione under the commerce clause met differ ent fates. That sustained in Detroi Int. Bridge Co. *v.* Corp. Tax Appea Bd. (287 U. S. 295) was treated a one on the right to do business and the domestic corporation involve was found to have the right to do real-estate business and therefore tax able, even though the business actua ly done was confined to the operatio of an international toll bridge. Ap parently the company raised only th issue of taxability and did not contes the amount of the tax. The assess ment seemed to be based on tota capital stock, and it seems likely tha part of the international bridge woul be outside of Michigan. On it facts, therefore, the case sustain an excise on a domestic corporatio measured in part by extra-territoria values, though the tax is on the righ to do rather than on the right to be The case, however, cannot be regard ed as authority on issues not raised

Subject of Tax.—In Anglo-Chilea Nitrate Sales Corp. *v.* Alabama (28 U. S. 218), there was disagreemen as to the subject of the tax. Th majority held that it was on th actual doing of business and, there fore, could not be imposed on corporation confining itself to im portation and the sales of imports i original packages. The minority in sisted that the tax was on the righ to do local business, which the corpo ration asked for and received, and o which it was taxable, even though un der the statute no tax would be du if no business were done. Here busi ness, though not a taxable business was done, and hence the compan came within the statue imposing a ta on the right to do local business. O this taxable subject, urged the dis sent, the tax might be measured b property within the state, though th property consists exclusively of im ports not subject to an *ad valoren* property tax. The majority do no clearly state that an excise on a prop or subject such as the right to do local business could not be measured by property consisting exclusively of imports, though there are general statements in the opinion broad enough to preclude the use of such a measure.

Gasoline Storage and Withdrawal.—A tax of two cents per gallon on the storage and withdrawal of gasoline within the state was held in Nashville, C. & St. L. R. Co. *v.* Wallace (288 U. S. 249) to be properly applicable to gasoline brought into the state in tank cars, stored in storage tanks, and then withdrawn for use in interstate transportation. Storage and withdrawal are outside of interstate commerce, though preceded and followed by it. This case was followed in Edelman *v.* Boeing Air Transport (289 U. S. 249) where the tax in terms was on gasoline "used or sold" within the state, and the tax was applied to gasoline brought in from outside, stored, and then withdrawn for use in interstate airplane service. The complainant contended that there was no sale and that the only use was use in interstate transportation, but the court treated the withdrawal from the tanks as "use," and so taxable under the earlier decision.

DECISIONS ON FEDERAL TAXATION

Multiple Taxation.—For a decade or more the Supreme Court has been progressively limiting the power of the states to impose property and inheritance taxes in order to reduce or abolish multiple taxation. These decisions were held in Burnet *v.* Brooks (288 U. S. 278) to be inapplicable to national taxation, and the Federal estate tax was allowed to reach a bank deposit and securities physically located in this country, though belonging to an alien non-resident decedent. Without making it apparent except by assertion, the Chief Justice says: "The Constitution creates no such relation between the United States and foreign countries as it creates between the States themselves." Formerly the test of taxing power was assumed to be one of jurisdiction for the states as well as for the nation. It still remains the test for the nation, but the states are subjected to additional limitations to prevent double taxation. Whether the state can do to the foreigner what the United States may do, remains to be decided.

Priority of Federal to State Tax Power. — In two cases Federal taxes were sustained notwithstanding the complaint that they imposed burdens on state instrumentalities. University of Illinois *v.* United States (289 U. S. 48) sanctioned duties on articles imported by a state university. By resting the decision on the complete power of Congress over foreign commerce, the court puts the issue outside of the class in which taxing power alone is wielded. Burnet *v.* Jergins Trust (288 U. S. 508) allowed the Federal income tax to apply to income of a lessee derived from the operation of oil wells owned by a city. Under similar situations the states are forbidden to tax the income of lessees of Indian oil lands under Federal control. This new decision must mean either that Indians are to be treated more tenderly than municipalities or that there is to be a strict limitation of the immunities hitherto extended to lessees of government lands.

THE PROHIBITION CONTROVERSY

By Thomas Nixon Carver

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REPEAL, THE END OF A CHAPTER

Joint Resolution in Congress.—The outstanding event of the year, so far as liquor prohibition was concerned, was the adoption of the 21st Amendment to the United States Constitution repealing the 18th Amendment. Early in the second session of the Seventy-second Congress in December, 1932, the following joint resolution was introduced:

"Joint resolution proposing an amendment to the Constitution of the United States.

"Resolved by the Senate and House of Representatives of the United States of America assembled in Congress (two-thirds of each House concurring therein), that the following article is hereby proposed as an amendment to the Constitution of the United States, which shall be valid to all intents and purposes as part of the Constitution when ratified by convention in three-fourths of the several states:

" 'Article—

" 'Section 1. — The Eighteenth Article of amendment to the Constitution of the United States is hereby repealed.

" 'Section 2.—The transportation or importation into any State, Territory, or possession of the United States for delivery or use therein of intoxicating liquors, in violation of the laws thereof, is hereby prohibited.

" 'Section 3.—This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by conventions in the several states, as provided in the Constitution, within seven years from the date of the submission hereof to the states by the Congress.' "

On Feb. 16, the Senate voted 63 to 23 for this resolution. On Feb. 20 the House concurred by a vote of 289 to 121.

THE MOVEMENT FOR RATIFICATION

State Conventions.—The Constitution provides two methods by which states may ratify a proposed amendment. One is by the state legislatures and the other is by conventions. Previous amendments had been ratified by the legislatures. In this case, Congress provided that the new amendment should not be operative unless or until it had been ratified by state conventions, three-fourths of the states being necessary. The matter having been definitely submitted to state conventions, the various state legislatures began planning for and calling conventions. Technically, ratification came only after the convention had met and formally voted to ratify. Actually, it was known as soon as the delegates were chosen whether the state would ratify or not.

Tax Concession. — The movement for repeal was shrewdly managed. As a special inducement to vote for repeal, Congress authorized the President to remove or reduce certain unpopular taxes when repeal became effective and revenues from excise taxes on liquor became assured. (National Recovery Act, Sec. 217.)

State Voting. — Another shrewd maneuver was to see to it that the first elections were held in notoriously wet states. This set an example to the doubtful states. The result was a monotonous series of votes for repeal, only two states, North Carolina and South Carolina, breaking the goose step. The first election of delegates to a state convention was held in Michigan on April 3. Wisconsin followed on April 4. In both States the votes were overwhelmingly for repeal and for wet candidates to the State conventions.

Analysis of the Voting.—Careful prognosticators saw in these votes the ultimate victory of the repeal movement. Drys, however, kept up a fight, but it was evident that they were leading a forlorn hope and fighting a losing battle. They kept up their courage by pointing out that the total vote cast was a small proportion of the total voting population. This was strikingly true of the later elections. In Michigan, where the first vote was taken, the total vote cast was 68 per cent of the Presidential vote of 1932, and in Wisconsin it was 70 per cent. In Missouri, however, the total vote on repeal was only a little over 38 per cent and in Texas 41 per cent. The average in all the states that have voted was around 50 per cent. The smallness of the total vote has led to some futile speculation as to whether the "stay-at-home" vote was predominantly wet or dry. There is no positive reason for assuming that it would have divided itself between wets and drys in proportions different from the vote actually cast. It is, however, a fair inference that the "stay-at-home" vote was an indifferent vote which might at some future time, be aroused to vote on one side or the other. This consideration would lead to the further conclusion that other upsets may come in the future as they have in the past.

21st Amendment Proclaimed.—On Nov. 7 the 36th State had, by popular election, virtually ratified the 21st Amendment. The last of the necessary number of state conventions were held on Dec. 5. On the same day the President by proclamation declared that the 21st Amendment was a part of the Constitution and that the 18th Amendment was no longer a law.

VOTES BY STATES

The following table summarizes the result of the various state votes on the subject of the adoption of the 21st Amendment.

State	Popular Vote For	Popular Vote Against	Convention Date
1. Michigan	850,546	287,931	Apr. 10
2. Wisconsin	648,031	141,518	Apr. 25
3. Rhode Island	150,244	20,874	May 8
4. Wyoming	......	......	May 25
5. New Jersey	573,532	90,733	June 1
6. Delaware	45,615	13,505	June 25
7. Indiana	557,062	312,120	June 26
8. Massachusetts	436,356	97,702	June 26
9. New York	1,946,532	247,450	June 27
10. Illinois	1,227,668	341,773	July 10
11. Iowa	376,661	249,534	July 10
12. Connecticut	236,742	34,816	July 11
13. New Hampshire	76,044	30,409	July 11
14. California	1,019,818	319,981	July 24
15. West Virginia	218,638	136,552	July 25
16. Arkansas	67,662	46,091	Aug. 1
17. Oregon	136,713	72,854	Aug. 7
18. Alabama	100,269	70,631	Aug. 8
19. Tennessee	126,983	119,870	Aug. 11
20. Maryland	503,642	156,961	Aug. 29
21. Arizona	37,643	11,323	Sept. 5
22. Nevada	......	......	Sept. 5
23. Vermont	41,182	20,714	Sept. 26
24. Colorado	133,066	62,969	Sept. 26
25. Washington	490,088	208,206	Oct. 3
26. Minnesota	390,179	209,049	Oct. 10
27. Idaho	56,652	40,977	Oct. 17
28. Maryland	205,130	45,776	Oct. 18
29. Virginia	99,459	58,517	Oct. 25
30. New Mexico	53,321	14,041	Nov. 2
31. Florida	98,247	24,439	Nov. 14
32. Texas	310,710	195,341	Nov. 27
33. Kentucky	386,653	234,417	Nov. 27
34. South Carolina	33,074	35,845	Dec. 4
35. Ohio	1,444,033	583,842	Dec. 5
36. Pennsylvania	1,864,411	583,513	Dec. 5
37. Utah	101,665	67,234	Dec. 5
38. Maine	114,975	53,000	Dec. 6
39. North Carolina	120,190	293,484	....
Total	15,279,216	5,333,992	

There were no State-wide votes in Wyoming and Nevada. Delegates to the state conventions were chosen by precincts and counties. All these state conventions except those of North and South Carolina voted to ratify the 21st Amendment.

THE CULLEN BEER BILL

The next most important event was the legalizing of 3.2 beer and wine. Before the 18th Amendment had been repealed, Congress had amended that section of the Volstead Act, which forbade the manufacture or sale of liquor containing more than one-half of one per cent of alcohol, by providing that beer and wine with not more than 3.2 per cent alcohol could be manufactured and sold. After prolonged hearings, it was solemnly voted that 3.2 per cent liquor was nonintoxicating. Much verbal testimony was heard, but no tests were made. This bill, known as the Cullen Beer Act, was passed on March 22, one month after the Federal House had adopted the resolution recommending the repeal of the 18th Amendment, and before a single state had ratified the resolution. It provided for a tax of $5 a barrel on all malt and vinous beverages containing one-half of one per cent or more of alcohol by volume, and not more than 3.2 per cent of alcohol by weight. It imposed a Federal license fee of $1,000 on brewers. It also permitted the advertising of liquors of not more than 3.2 per cent alcohol.

INUNDATING THE DRY STATES

The repeal of the 18th Amendment does not, of course, automatically repeal state prohibitory or local option laws. However, the swing of popular sentiment against national prohibition has carried with it a certain swing against state and local prohibition. One argument against the 18th Amendment was to the effect that the control or suppression of the liquor business was a state and local matter and not a matter for Federal legislation. It was an appeal to the sentiment for state sovereignty and local self-government. This undoubtedly had some weight with voters, but many of the opponents of Federal prohibition are now fighting state and local prohibition, with the result that in some of the states the liquor laws, some of which were adopted before the Federal Government went dry, have been either modified or repealed. So far as prohibition is concerned it has become a state and not a national issue. The struggle for repeal is transferred from national to state and local politics. The more extreme opponents of prohibition are quite as much opposed to state or local as to national prohibition. In so far as the personal liberty argument goes, state or local prohibition is as definitely an infringement of personal liberty as national prohibition. So, also, for that matter, are the codes and other restrictions imposed by the National Recovery Administration.

At the time of repeal, nineteen states permitted the sale of liquor under more or less strict regulations. A twentieth state, Montana, had voted to repeal its prohibitory law, but provisions for the sale of liquor had not yet gone into effect. These twenty States were:

Massachusetts
Connecticut
Pennsylvania
Wisconsin
Colorado
Arizona
California
Washington
Louisiana
Rhode Island
New York
Delaware
Illinois
Indiana
New Jersey
New Mexico
Nevada
Oregon
Maryland
Montana

The remaining twenty-eight states still had at that time prohibitory laws, though some have since repealed theirs. Special inducements are being held out to dry states to become wet, such as threats to give as rebates to wet states a share of the revenue from Federal liquor taxes and to deprive dry states of a share. The same threat is held over local option areas in wet states.

This proposal was seriously made at a joint hearing of the Ways and Means Committees of the House and the Finance Committee of the Senate on Dec. 12 by Edward G. Lowry, Jr., special assistant to the Secretary of the Treasury. The scheme was to allocate 20 per cent of the revenue from the liquor tax to the various states on the basis of the total production and consumption in the individual states. When asked by Senator Walsh if he meant that the state that drank the most would get the most, Mr. Lowry pointed out that the quantity manufactured in the state would also count. When asked by Mr. Evans what the 28 dry states would get on consumption, Mr. Lowry answered, "Nothing."

THE RETURN OF THE SALOON

The President, in his proclamation announcing the end of Federal Prohibition, used these words: "I ask especially that no state shall by law or otherwise authorize the return of the saloon either in its old form or in some modern guise.'' Considerable ingenuity is being shown to find a ''modern guise'' under which the saloon can return. Massachusetts has authorized the sale of liquor in ''taverns'' which differ from saloons mainly in the provision that drinkers shall sit and not stand while drinking. The word ''tavern'' has become popular among those who are seeking a modern guise for the saloon. In California, Colorado and Connecticut, beer and wine may be sold by the glass, but hard liquors cannot be drunk on the premises where sold.

POSSIBLE NET GAINS

While Federal Prohibition has come to an end, the indications are that the country as a whole, will not go back to the pre-prohibition conditions. The President, as quoted above, is distinctly opposed to the return of the saloon. With the exception of five ''wide-open'' states, to which a few more may be added, the various states are drawing up more or less drastic liquor codes. With somewhat drastic liquor control, education for temperance may proceed with rather better chances of success than it had in the wide-open days. Education is a weapon which the liquor interests can use as well as the temperance forces. So long as there is money to be made by extending the drink habit, those who want to make money in that way will be ''educating'' for intemperance. When there are powerful financial interests which make more money every time a non-drinker is converted into a drinker, an occasional drinker into a steady drinker, or a light drinker into a hard drinker, there will be high pressure campaigns to achieve each of those purposes. The achievement of temperance through education is thus, in part at least, nullified unless there are legal restrictions on the ''educational'' activities of the liquor interests.

NEW PHASE OF LIQUOR CONTROVERSY

The liquor controversy has, at the end of the year 1933, passed definitely into another phase. It is no longer a struggle between the prohibitionists and the anti-prohibitionists; it is a struggle between those who wish to increase the consumption of liquor and those who wish to decrease it, that is, between the liquor interests who wish to make more money out of the liquor business and those who oppose them. The latter group was, during the later years of the prohibition experiment, divided into two camps, first, those who believed that prohibition was the best way to curb the liquor traffic, and second, those who did not. Those who did not think that prohibition was the best way were finally induced to join forces with the liquor interests in opposing prohibition. The result was the overwhelming vote in favor of the 21st Amendment.

There are already signs of a split between the two groups which united in working for repeal. The split comes on the question of control. Those who desire to increase the consumption of liquor are fighting against all drastic restrictions and in favor of a more or less wide-open policy. Those who desire to see the consumption of liquor decreased rather than increased, even though they were opposed to prohibition, are in favor of more or less drastic restrictions on the sale of liquor. How wide this split between the two anti-prohibition groups will become, and whether there will be a reunion of the two camps which oppose the extension of the drink habit, remain to be seen.

RIVAL EDUCATIONAL CAMPAIGNS

The struggle between the forces which desire to increase the consumption of liquor and those which desire to decrease it has already become a struggle between two educational forces: first, those who are trying to educate people to drink more, and second, those who are trying to educate them to drink less. Those who are trying to educate people to drink more are using every device known to the advertiser and the high-pressure salesman to popularize drinking. There is money to be made by this form of education. There is none to be made by those who try to carry on an educational campaign in favor of less drinking. If the struggle shifts in any degree from the field of education to the field of legislation, it will probably become a struggle to curb by law the activities of those who are trying to educate people to drink more.

The advertising of hard liquors is illegal, but little attention is paid to the law. There has begun an agitation for the repeal of all laws forbidding such advertisements. The wet press, having a pecuniary interest in such repeal, is already throwing the weight of its entire influence on that side. The 21st Amendment, Section 2, prohibits the transportation or importation of intoxicating liquors into dry states. Presumably, the Federal Government may feel called upon to support this provision of the Constitution by appropriate legislation. This has already been anticipated by the opponents of prohibition, the more extreme of whom are now taking the position that even a state has no right to be dry.

CHRONOLOGY OF AMERICAN POLITICAL EVENTS

(From *The New York Times*, December 31, 1933)

JANUARY

Jan. 5 — President-elect Franklin Delano Roosevelt confers with Congressional Democratic leaders in New York City to discuss balancing the national budget by new beer and gasoline tax and by cutting appropriations.

Died: Calvin Coolidge, 30th President of the U. S.

Jan. 17—President Hoover, in an emergency message, urges Congress to make it easy for his successor by balancing the budget.

Jan. 19 — President Hoover's reorganization plans for government departments introduced in Congress, Dec. 9, 1932, are defeated by Democrats in the House.

Jan. 23—Missouri, the last of the thirty-six states necessary to approve the Twentieth Amendment, inaugurating President and Vice President on Jan. 20, and convening Congress on Jan. 3, ratifies Senator Norris's measure. Time of ratification (327 days), the shortest since the anti-slavery amendment, Article XIII, was ratified.

Jan. 28 — The House passes bill reducing Federal expense of maintaining prohibition.

FEBRUARY

Feb. 4—Governor of Louisiana is the first to decree a bank holiday to prevent runs.

Feb. 7 — In an amendment to the $941,000,000 appropriation bill for the Postoffice and the Treasury the Senate gives the next President drastic powers of administrative reorganization.

Feb. 25 — President Hoover signs Couzens bill giving Controller of the Currency the same authority over national banks that similar state officials exercise over state banks; also signs a bill authorizing the Supreme Court to evolve methods for speeding up appeals in criminal cases.

MARCH

March 3 — President Hoover signs the LaGuardia-McKeon bill for the relief of hard-pressed debtors.

March 4—Mr. Roosevelt, with John Nance Garner as Vice President, is inaugurated as the thirty-second President of the United States and pledges himself, with super-administrative powers, if necessary, and by directing legislation, to overcome economic and financial distress, and, without injuring the nation's prestige abroad, to place domestic problems before foreign.

President Hoover has failed to sign ("pocket veto") the Independent Officers Appropriation Bill for $1,000,192,195, one item of which would give the Veteran Bureau $966,838,634 for the next fiscal year.

March 5—President Roosevelt issues a proclamation calling a special session of the newly elected Seventy-third Congress for March 9, when, according to the Twentieth Amendment, its first session would begin Jan. 3, 1934; also a proclamation closing the banks from March 6 to March 9 inclusive, and then until further notice.

March 12—The President's popular radio address on banking.

March 13 — An urgent message to Congress to modify the Volstead Act so that new revenues may be created by taxes on light beer and wines.

March 20—President Roosevelt signs the Economy Bill projected to save the government $500,000,000 by reducing civil service salaries and veterans' compensations, and lopping off unmerited pensions.

March 22—The Cullen Bill, permitting transactions in beer and wine with an alcoholic content of 3.2 per cent by weight, is signed.

March 29 — Special message asks Congress to legislate for protection of investors.

March 31—The President signs the Copeland-Celler Medicinal Liquor Bill, giving physicians a free hand in prescribing liquor; also signs the Forestation Work Relief Bill, giving employment to 250,000 civilians recruited by the War Department.

APRIL

April 1—An order is signed reducing the pension payroll by $400,000,000 and affecting 1,500,000 pensioners, particularly the dependents of veterans who were neither killed, wounded nor diseased in service.

April 3—A special message to Congress outlining legislation for farm mortgage relief; issuance by Federal Land Banks of $2,000,000,000 4 per cents, with interest guaranteed by the government, which could be exchanged for privately held mortgages.

April 13—The President sends plan to House for relief of home mortgage situation.

April 19—The President puts an export embargo on all gold not already owned abroad, and the nation goes off the gold standard.

April 20—President Roosevelt sends plan for controlling inflation to the Senate.

MAY

May 4—President sends to Congress the Emergency Relief Bill intended as a temporary measure to enable railroads to help themselves by mutual agreements of routes and rates under a Federal Co-ordinator of Transportation.

May 7—In a review over the radio of the two months' work of his administration the President outlines a situation in which inflation may become necessary, but adds that his administration has "the definite objective of raising commodity prices to such an extent that those who have borrowed money will, on the average, be able to repay that money in the same kind of dollar which they borrowed."

May 12—The President signs State Relief Bill, carrying $500,000,000, creating the office of Federal Relief Administrator, who will make distributions from the funds of the Reconstruction Finance Corporation on the basis of $1 for each $3 raised by a state.

May 18—The President signs the long-pending Muscle Shoals Bill, with a particular view to develop the Tennessee River Valley.

May 27—Securities Bill is signed, intended to protect investors by having interstate transactions in securities registered with the Federal Trade Commission.

JUNE

June 5—The President signs a Congressional joint resolution abrogating the "gold clause" in monetary obligations, as advised by him on May 26.

June 6—A bill is signed coördinating interstate employment and making possible jobs for about 13,000,000.

June 16—The President characterizes the National Industrial Recovery Act as a supreme effort for permanent stabilization and progress and the preservation of American standards.

JULY

July 9—The first industrial code proposed under the NRA is approved; it affects the cotton textile industry as to time, wage and child labor. On July 16 the same code is made to include the synthetic silk industry.

July 13—A super-Cabinet made up of the regular Cabinet and the heads of the various recovery administrations organized by the President on July 11, with the title Executive's Cabinet Advisory Board, gets to work by dividing the country into ten zones, each with a key city for relief and recovery.

July 14—The President orders a processing tax of 4.2 cents a pound on cotton, on the report from Secretary of Agriculture Wallace of the promised destruction of 3,500,000 bales of cotton growing on nearly three times that number of acres — the first step toward the President's comprehensive farm relief program.

July 20—The President issues, by a decree, a blanket-code to raise wages and shorten hours of work, while the codes of the NRA are being formulated, and explains it four days later over the radio.

AUGUST

Aug. 5—In a statement issued by the President at Hyde Park, he asks the nation to support the NRA so as to obviate strikes and lockouts during the formation of the codes under which industries are to be operated.

Aug. 19—Codes of the oil, steel and lumber industries are signed.

Aug. 27—The code for the automobile industry is signed.

Aug. 30—The President appoints an administrative body of fifteen to cooperate with Secretary of the Interior Ickes to advise the differences arising from the execution of the oil code.

SEPTEMBER

Sept. 18—The important bituminous coal code is signed after modification by the President.

Sept. 21 — The President authorizes the Agriculture Adjustment Administration to purchase food and clothing for 3,500,000 families already on the relief rolls so as to diminish surplus stocks—principally cotton and pork.

OCTOBER

Oct. 2—In an address to the Chicago convention of the American Legion the President acknowledges the government's responsibility to those who have suffered in defense of the country, but places soldiers who have not suffered in the same category as other citizens.

Oct. 4—No recovery act can suddenly make all the people self-supporting, the President tells the National Conference of Catholics in New York City.

Oct. 7—The President eulogizes unselfish patriotism and condemns militaristic special privilege at the unveiling of a memorial to Samuel Gompers in Washington.

The President places non-union coal mines under the collective-bargaining provisions of the coal code, which is tantamount to placing the mines under the United Mine Workers Union.

Oct. 22—In a radio address the President announces his plan to buy gold so as to depreciate the value of the dollar and thus raise the value of commodities, which would wipe out unemployment in agriculture and industry, and make possible the payment of public and private debts nearly at the price level at which they had been incurred.

NOVEMBER

Nov. 8—The executive formation of a Civil Works Administration with a credit of $400,000,000 is announced, to be operated by Harry L. Hopkins, Federal Emergency Relief Administrator, for the purpose of transferring about 4,000,000 receivers of doles to self-sustaining work.

Nov. 16—First Federal indictment for violation of NRA codes is handed to Brooklyn United States District Judge for prosecution of the Hercules Gasoline Filling Stations, Inc.

Nov. 18—At the Savannah (Ga.) Stadium, the President assails the doubters of his policies.

DECEMBER

Dec. 5—Before the Federal Council of Churches the President openly condemns officials and others who condone "lynch law."

Dec. 6—President Roosevelt issues proclamation repealing the XVIII Amendment and Acting Secretary of State Phillips announces the adoption of the XXI Amendment.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Antiquarian Society Worcester, Mass.

American Baptist Historical Society, Upland Avenue, Chester, Pa.

American Historical Assn., 40 B Street S. W., Washington, D. C.

American Irish Historical Society, 132 East 16th St., New York City.

American Jewish Historical Society, Broadway at 122nd Street, New York City.

American Numismatic Society, 156th Street at Broadway, New York City.

American Proportional Representation League, 1417 Locust Street, Philadelphia, Pa.

American Scenic and Historic Preservation Society, 287 Convent Avenue, New York City.

American Society of Church History, 98 Mercer St., Princeton, N. J.

Canadian Historical Assn., Ottawa, Canada.

Hispanic Society of America, 156th St., W. of Broadway, New York City.

Holland Society of New York, 90 West Street, New York City.

Huguenot Society of America, 2 West 45th Street, New York City.

Methodist Historical Society, 150 Fifth Ave., New York City.

Mississippi Valley Historical Assn., Station B, Lincoln, Neb.

New England Historic Geneological Society, 9 Ashburton Place, Boston, Mass.

Northwestern Assn. of History, Government and Economic Teachers, Spokane, Wash.

Presbyterian Historical Society, 520 Witherspoon Building, Philadelphia, Pa.

Society for the Preservation of New England Antiquities, 141 Cambridge St., Boston, Mass.

Steuben Society of America, 369 Lexington Ave., New York City.

Thomas Paine National Historical Assn., 148 West 47th Street, New York City.

United States Catholic Historical Society, New York City.

Woodrow Wilson Foundation, 6 East 39th Street, New York City.

POLITICAL

League for Industrial Democracy, 112 E. 19th Street, New York City.

National League of Women Voters, 726 Jackson Place, Washington, D. C.

National Municipal League, 309 E. 34th Street, New York City.

Women's National Democratic Club, Inc., Central Park West and 61st Street, New York City.

Women's National Republican Club, 6 East 37th Street, New York City.

DIVISION II

INTERNATIONAL RELATIONS AFFECTING THE UNITED STATES

FOREIGN SERVICE OF THE UNITED STATES

By Herbert C. Hengstler

Division of Foreign Service Administration, Department of State

GROWTH AND DEVELOPMENT

Consular. — From the time when Benjamin Franklin was commissioned as the first Minister Plenipotentiary of the United States of America in 1778 and Col. William Palfrey was commissioned as the first Consul in 1780, efforts have from time to time been put forth to improve the foreign service of the United States. Little progress was made until 1856 when Congress enacted legislation effecting various improvements in the Consular Service. No further general legislation was enacted until April 5, 1906, when the act for the reorganization of the Consular Service was passed. In 1895 President Cleveland, by executive order, provided for examinations (non-competitive) for persons selected for appointments to a portion of the consulates then maintained. However, selections for appointment were still individual. The Act of 1906 and executive orders issued by President Roosevelt at that time placed the Consular Service on a merit basis.

Classification.—This was followed Feb. 5, 1915, by an act classifying diplomatic secretaries and consular officers, providing for their appointment to classes rather than to posts. The next important step forward was that of May 24, 1924, known as the Rogers Act, which amalgamated the two branches, diplomatic and consular, into one Foreign Service, all officers being available for service in either diplomatic or consular offices and sharing equally in opportunity for promotion on their efficiency.

New Legislation.—While the Rogers Act was of the greatest value in building up an efficient career service and in establishing a valuable morale, it did not contain many things which experience in its administration indicated were essential. The Congress gave much more consideration to the subject and as a result the latest advance step, known as the Moses-Linthicum Act, became law, Feb. 23, 1931. The major improvements made by the law are: (1) classification and merit system for clerical employees; (2) establishment of a Board and a Division of Foreign Service Personnel with carefully prescribed duties to insure impartial administration and promotions; (3) establishment of central disbursing and accounting offices; (4) maximum and minimum salary ranges in various classes; (5) statutory authorization for post and representation allowances; (6) cumulation of leave; (7) retirement at discretion of officer after service of 30 years.

ADMINISTRATION

Regulations. — In connection with the Foreign Service Act of Feb. 23, 1931, the administrative regulations embodied in Executive Orders (Nos. 5642/4, June 8, 1931) are of special importance. These regulations give practical effect to some of the chief purposes of the act. They set up machinery whereby it is put into operation by providing for a Board of Foreign Service Personnel, a Board of Examiners, a Foreign Service Officers' Training School, and a Foreign Service Officers' Training School Board.

Board of Foreign Service Personnel.—The duties of this Board are to examine into the character, ability, efficiency, experience and general availability of all members of the Service with a view to promotions, transfers and separations; to consider controversies or delinquencies among Service personnel, and to recommend those officers, who have shown special capacity, for promotion to the grade of minister. The Board is composed of not more than three Assistant Secretaries of State, one of whom shall be the Assistant Secretary having supervision over the Division of Foreign Service Personnel, who shall be chairman. The Chief of the Division of Foreign Service Personnel and one other member of the division may attend the meetings of the Board, but are not entitled to vote in its proceedings.

Board of Examiners.—The duties of the Board are to formulate rules to determine the scope and method, and hold examination of applicants for commission to the Foreign Service, and to determine those who are fitted for appointment. The examinations, which shall be both written and oral, are open only to Americans of good standing between the ages of 21 and 35 specially designated by the President for examination, who have been citizens of the United States for at least 15 years. American clerks and employees in the Foreign Service are granted certain exceptions concerning age and may be exempted by the Board from the written examinations. The Board is composed of not more than three Assistant Secretaries of State designated by the Secretary of State, the Chief of the Division of Foreign Service Personnel, and the Chief Examiner of the Civil Service Commission.

OFFICERS' TRAINING SCHOOL

Purposes.—The purpose of this school is to provide a term of instruction in the Department of State as a period of probation for those successfully passing the examinations given by the Board of Examiners, and to judge, during this period, the new appointees to the Service as to their qualifications for advancement and assignment to duty as a Foreign Service officer. The governance of the school is to be set forth in rules and regulations prescribed by the Secretary of State. The school is under the direction of the Foreign Service School Board.

Foreign Service School Board.—The duties of the Board are to act in all matters concerning the functions of the school with the approval of the Secretary of State; to select the director of the School from among the officers of the Foreign Service with the approval of the Secretary of State, and in its discretion to select other instructors from among the qualified officers of the Department of State, the Foreign Service, the executive departments of the Government, and other available sources. The Board is composed of the Assistant Secretaries of State composing the Board of Foreign Service Personnel, one Foreign Service officer assigned for duty in the Division of Foreign Service Personnel, and the director of the School.

PERSONNEL

Changes.—During 1933 no examinations were held, due to the provisions of the so-called Economy Act, which prohibited the filling of vacancies during the fiscal year.

Promotions From the Ranks.—Since 1925, when the policy was formulated of promoting outstanding officers of the Service to the grade of Minister and Ambassador instead of recruiting them solely from civil life, there have been marked advances. During 1933, six Ambassadors out of a total of 15, and 19 Ministers out of a total of 38, have been drawn from the ranks of the Foreign Service. In addition, the Minister Resident and Consul General in Ethiopia, the Dip-

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lomatic Agent and Consul General to Morocco and the Minister Resident and Consul General at Baghdad, Iraq, were Foreign Service officers.

Losses to the Service.—During 1933, there have been 7 deaths, 12 retirements and 26 resignations from the Foreign Service. At present the Service totals 707 career officers.

CLASSIFICATION, FOREIGN SERVICE, 1934

	Salary	Number provided for 1934
Heads of Missions		
Ambassadors......	$17,500	15
Ministers.........	12,000	2
Ministers.........	10,000	36
Diplomatic Agent and Consul General............	9,000	1
		54
Foreign Service Officers		
Class 1.......	$9,000–10,000	31
Class 2.......	8,000– 8,900	33
Class 3.......	7,000– 7,900	47
Class 4.......	6,000– 6,900	55
Class 5.......	5,000– 5,900	63
Class 6.......	4,500– 4,900	82
Class 7.......	4,000– 4,400	77
Class 8.......	3,500– 3,900	58
Unclassified...	3,000– 3,400	48
Unclassified...	2,750– 2,900	52
Unclassified...	2,500– 2,700	159
		705
Clerks—Senior		
Class 1...........	$4,000	2
Class 2...........	3,750	3
Class 3...........	3,500	8
Class 4...........	3,250	16
Class 5...........	3,000	63
Clerks—Junior		
Class 1...........	$2,750	67
Class 2...........	2,500	124
Class 3.......	$1,200–2,250	1,282
		1,565

DIPLOMATIC PERSONNEL

AMBASSADORS

	ACCREDITED BY UNITED STATES		ACCREDITED TO UNITED STATES	
Argentina	Alexander W. Weddell	1933	Sr. Dr. Felipe A. Espil	1931
Belgium	Dave Hennen Morris	1933	Mr. Paul May	1931
Brazil	Hugh S. Gibson	1933	Mr. R. de Lima e Silva	1931
Chile	Hal H. Sevier	1933	Sr. Don Miguel Cruchaga Torcornal	1931
Cuba	Jefferson Caffery	1933	Sr. Manuel Marquez Sterling	1933
France	Jesse Isidor Straus	1933	Mr. André de Laboulaye	1933
Germany	William E. Dodd	1933	Herr Hans Luther	1933
Great Britain	Robert Worth Bingham	1933	The Honorable Sir Ronald Lindsay	1930
Italy	Breckenridge Long	1933	Signor Augusto Rosso	1933
Japan	Joseph C. Grew	1932	Mr. Hiroshi Saito	1933
Mexico	Josephus Daniels	1933	Sr. Dr. Don Fernando González Roa	1933
Peru	Fred Morris Dearing	1930	Sr. Don Manuel de Freyre y Santander	1930
Poland	John Cudahy	1933	Mr. Stanislaw Patek	1933
Spain	Claude Gernade Bowers	1933	Sr. Don Juan Francisco de Cárdenas	1932
Turkey	Robert P. Skinner	1933	Mr. Ahmet Muhtar	1927
Union of Soviet Socialist Republics	William C. Bullitt	1933	Mr. Alexander Antonovich Troyanovsky	1933

FOREIGN SERVICE OF THE UNITED STATES

MINISTERS

	ACCREDITED BY UNITED STATES		ACCREDITED TO UNITED STATES	
Albania	Post Wheeler	1933	Faik Konitza	1926
Austria	George H. Earle, 3d.	1933	Mr. Edgar L. G. Prochnik	1925
Bolivia	Fay A. des Portes	1933	Sr. Dr. Don Enrique Finot	1932
Bulgaria	Frederick A. Sterling	1933	Mr. Simeon Radeff	1925
Canada	Warren Delano Robbins	1933	The Honorable William Duncan Herridge	1931
China	Nelson T. Johnson	1929	Mr. Sao-Ke Alfred Sze	1933
Colombia	Sheldon Whitehouse	1933	Sr. Dr. Don Fabio Lozano	1931
Costa Rica	Leo R. Sack	1933	Sr. Don Manuel González-Zeledón (Chargé d'Affaires *ad interim)*	1932
Czechoslovakia	Francis White	1933	Dr. Ferdinand Veverka	1928
Danzig, Free City of	Charles H. Heisler (Consul in Charge)	1932	——	
Denmark	Mrs. Ruth Bryan Owen	1933	Mr. Otto Wadsted	1930
Dominican Republic	H. F. Arthur Schoenfeld	1931	Sr. Don Roberto Despradel	1931
Ecuador	William Dawson	1930	Sr. Capitán Colón Eloy Alfaro	1933
Egypt	Bert Fish	1933	Nicholas Khalil Bey (Chargé d'Affaires *ad interim*)	1933
El Salvador	William J. McCafferty (Chargé d'Affaires *ad interim*)	1932	——	
Estonia	John Van A. MacMurray	1933	Mr. Charles Kuusik, Acting Con. Gen'l in N. Y. C. in charge of Legation	1932
Ethiopia	Addison E. Southard	1927	——	
Finland	Edward Albright	1933	Mr. L. Aström	1922
Greece	Lincoln MacVeagh	1933	Mr. Charalambos Simopoulos	1924
Guatemala	Matthew E. Hanna	1933	Sr. Dr. Don Adrian Recinos	1928
Haiti	Norman Armour	1933	Mr. Dantès Bellegarde	1931
Honduras	Julius G. Lay	1929	Sr. Dr. Don Miguel Paz Baraona	1933
Hungary	John Flournoy Montgomery	1933	Mr. Nicholas de Vegh	1933
Iraq	Paul Knabenshue	1933		
Irish Free State	William Walter McDowell	1933	Mr. Michael MacWhite	1929
Latvia	John Van A. MacMurray	1933	Mr. Arthur B. Lule, Consul General in N. Y. C. in charge of Legation	1927
Liberia	McCeney Werlich (Chargé d'Affaires *ad interim*)	1933	——	
Lithuania	John Van A. MacMurray	1933	Mr. Bronius Kasimir Balutis	1928
Luxemburg	Dave Hennen Morris	1933	——	
Monaco	Austin C. Brady (Consul, in charge)	1933	——	
Morocco	Maxwell Blake (Diplomatic Agent)	1927	——	
Netherlands	——		Baron van Breugel Douglas (Chargé d'Affaires *ad interim*)	1933
Nicaragua	Arthur Bliss Lane	1933	Sr. Dr. Don Henry De Bayle (Chargé d'Affaires *ad interim*)	1933
Norway	Hoffman Philip	1930	Mr. Halvard H. Bachke	1927
Palestine	Alexander K. Sloan (Consul, in charge)	1932	——	
Panama	Antonio C. Gonzalez	1933	Sr. Dr. Ricardo J. Alfaro	1932
Paraguay	Meredith Nicholson	1933	Sr. Dr. Don Enrique Bordenave	1933
Persia	Charles C. Hart	1929	Ghaffar Khan Djalal	1933
Portugal	Robert Granville Caldwell	1933	Dr. João Antonio de Bianchi	1933
Rumania	Alvin Mansfield Owsley	1933	Mr. Charles A. Davila	1929
San Marino	Joseph E. Haven (Consul, in charge)	1925	——	
Siam	James Marion Baker	1933	His Serene Highness Prince Damras Damrong Devakula	1933
Sweden	Lawrence A. Steinhardt	1933	Mr. W. Boström	1926
Switzerland	Hugh R. Wilson	1927	Mr. Marc Peter	1920
Syria	Herbert S. Goold (Consul Gen'l in charge)	1930		
Union of South Africa	Ralph J. Totten	1930	Mr. Eric Hendrik Louw	1929
Uruguay	J. Butler Wright	1930	Dr. J. Varela	1920
Venezuela	George T. Summerlin	1929	Sr. Dr. Don Pedro Manuel Arcaya	1930
Yugoslavia	Charles S. Wilson	1933	Dr. Leonide Pitamic	1929

II. INTERNATIONAL RELATIONS AFFECTING THE U. S.

UNITED STATES TREATIES

By Denys P. Myers

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GENERAL

States embody in treaties those principles and formulas of their relations which they expect to prove continuing rules of action. The year 1933 was essentially a period of change, of shift of social emphasis, of national introspection. In the production of treaties it was characterized by grandiose efforts and by the conclusion of minor or routine instruments.

ARMAMENTS

The United States was an active factor in the two elaborate attempts to improve the international situation, armament and economics. It was a party to one of the three parts of the declaration of Dec. 11, 1932, which accepted equality of Germany with respect to armament. That led to the spring session of the Conference for Reduction and Limitation of Armaments, where international control, consultation and concerted action were agreed to in principle, the United States associating its policy with all three. That groundwork led to initialing at Rome on June 7 and the signing on July 15 of the agreement of understanding and coöperation between France, Germany, Great Britain and Italy; the United States was concerned in the negotiations, though not a participant in this "four-power pact." The benevolent attitude of the United States at Geneva made possible the adoption of the Soviet formula defining aggression and thus contributed in July to the conclusion of conventions on that basis by the Soviet Union with all its limitrophe states except Japan. The influence of the United States upon the still thorny problem of the political preparation for armament control was thus not negligible; its direct influence on the solution of that problem was continuous and conciliatory.

ECONOMIC PROBLEMS

With respect to the London Monetary and Economic Conference the effect of Washington was that of a leading participant. The United States proposed the tariff truce, accepted by 59 countries, but was also early in the stampede to withdraw from it. With other states we withdrew from the convention for the abolition of import and export prohibitions and restrictions of 1929, which ceased on June 30 to exist as an effective instrument. In the London conference the United States had a profound effect both by what it did and what it did not do. The resolutions adopted, which the conference intends to develop into treaties at favorable opportunities, were impressed with American views. The two agreements which the conference session made possible were both of special interest to the United States. The silver agreement of July 22 between Australia, Canada, China, India, Mexico, Peru, Spain and the United States is subject to ratification. The international wheat agreement of Aug. 25 entered into force at its signature between 17 states, the Soviet Union remaining out. It is a scheme to bring the exporting and importing countries into a balanced control of production and marketing under the management of an advisory committee. Meantime the United States followed the lead of other countries and began negotiating trade agreements with a view to assuring larger outlets for its products through bilateral arrangements.

International treaties cannot be made by governments which have convictions diametrically opposed to each other or very diverse. Both the armament and economic problems cut to the marrow of international relations, and the experience of 1933 showed that policies were not yet sufficiently similar for fundamental agreement to emerge. In both fields differences became more clearly defined and the methods of handling them underwent close scrutiny. The exigency of solutions insures continued consideration of them, and it remains to be seen whether the failure to attain results in 1933 was not a phase in the ripening of important agreements. At the end of the year the American states met at Montevideo to try their hand at organizing peace and prosperity.

MULTILATERAL NARCOTIC CONVENTION

For the United States only one multilateral convention came into force in 1933, the convention for limiting the manufacture and regulating the distribution of narcotic drugs of July 13, 1931. The President ratified this instrument April 8, 1932, and this prompt evidence that the United States would participate in the system it established had much to do with a notable success in a well-developed form of international regulation. The convention obligates the states parties to it to confine manufacture and import of narcotics to annual estimated quantities fixed by themselves or, failing that, by a Supervisory Body provided for in the convention. The authority over state action given the Supervisory Body was so definite that the convention was not to come into force until 90 days after 25 ratifications or accessions, including those of four manufacturing states, had been deposited. The prompt action of the United States and the energetic follow-up of the Secretariat of the League of Nations realized that condition on April 10, 1933, the convention entering into force on July 9 between 30 states. The number had risen to 39 a month later.

INTERNATIONAL LOAD LINE CONVENTION

The international load line convention of July 5, 1930, came into force automatically on Jan. 1, 1933, but the United States had not a year later ratified its counterpart, the international convention on safety of life at sea, which was still with the Senate.

INTERNATIONAL COMMUNICATIONS CONVENTION

Though the Madrid conference closed with the signing of eight instruments on Dec. 9 and 10, 1932, this consolidation of telecommunications regulation had not been issued in English translation a year later. The main instrument, the international telecommunications convention, was signed for 72 countries; the United States also signed the general radiocommunications regulations and the final radio protocol. It did not sign the additional radiocommunications regulations, the telegraph regulations, the final telegraph protocol, the telephone regulations or the European radio protocol, all of which relate particularly to governmental régimes.

DENUNCIATION OF GREEK TREATY

In view of the failure of Greece to extradite Samuel Insull under the treaty of May 6, 1931, the United States has denounced it, to take effect November 1, 1937, according to its terms.

CANADA AND MEXICO

The St. Lawrence waterways treaty with Canada signed July 18, 1932, was not acted upon by the Senate in 1933. At the other side of the country a convention with Mexico for rectification of the Rio Grande between El Paso and Fort Quitman, signed Feb. 1, 1933, went into force Nov. 10. It provides for a flood-control dam and for reducing the channel of the river in that section from 155 to 85 miles in length.

ABROGATION OF LIQUOR SMUGGLING CONVENTIONS

Entrance of the 21st amendment to the Constitution into force on Dec. 5 had the effect of abrogating liquor smuggling conventions with Belgium, Chile, Cuba, Denmark, France, Germany, United Kingdom, Greece, Italy, Japan, Netherlands, Norway, Panama, Poland, Spain and Sweden. A convention with Panama regulating the transit of alcoholic liquors through the territory of the Canal Zone, which entered into force on March 25, 1933, also went by the board.

AVIATION AGREEMENTS

Aviation continues to be the subject of executive agreements. On

Sept. 20, 1933, with South Africa, on Oct. 9 1933 with Sweden and on Nov. 15 with Norway there became effective three arrangements each regarding (1) air navigation by civil aircraft; (2) pilot licenses to operate civil aircraft; and (3) reciprocal recognition of certificates of airworthiness for imported aircraft. These are either a breakup or elaboration of the substance of arrangements on the same subjects which have been made in previous years. Regulations were issued by the Netherlands Feb. 23, 1933 to admit United States aircraft pending the entrance into force of the general air arrangement signed Nov. 16, 1932, which requires ratification by the Netherlands but not by the United States. The diversity of aviation agreements remains considerable. The international air navigation convention of 1919 and its modifying protocols are pending before the Senate and until they are ratified regulation of aviation is necessarily arranged piecemeal and bilaterally.

TREATY WITH HAITI

Following the failure at Port-au-Prince in 1931 of the Haitinization agreement, its successor went into force on August 7,. 1933, providing for Haitianization of the Garde and withdrawal of the marines by Oct. 1, 1934, and the substitution of a fiscal representative for the former financial adviser-receiver general, with diminished powers, until the liquidation of outstanding loans.

FRENCH TREATY INTERPRETATION

An interpretation of the consular convention of Feb. 23, 1853, insures from March 4, 1933, that citizens of the United States enjoy the same treatment as French citizens in matters relating to the ownership, possession or disposal of property, considerable inconvenience having occurred in Paris on that account.

MISCELLANEOUS TREATY ITEMS

The jurisdiction of the Chinese courts in the international settlement at Shanghai over foreigners was extended until April 1, 1936, by exchanges of notes in February, 1933.

The Kingdom of Saudi Arabia and the United States signed the first instrument establishing relations between them on Nov. 7, a provisional agreement of commerce and navigation.

The United States put into force on July 9, 1933, a treaty of friendship, commerce and consular rights with Poland, and on Feb. 15, 1933, with Turkey its first treaty of "establishment and sojourn." An extradition treaty was signed with Albania March 1, 1933.

THE UNITED STATES AND WORLD AFFAIRS

By John M. Mathews

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DISARMAMENT AND PEACE

Geneva Conference. — The World Disarmament Conference, which had met in Geneva in 1932, continued during 1933 a somewhat precarious existence without accomplishing any very tangible results. The discussions at the Conference, however, did enable the powers represented to explore further the realities of the situation and to develop their respective positions. The representatives of the respective powers evinced an unwillingness to reduce their own armaments, a feeling which was accentuated by events tending to constitute a menace to continued peace. The principal event of this sort was the coming of Hitler to power and the emergence of a new and more militant Germany. The Treaty of Versailles had contained a promise on the part of the allied powers to reduce their armaments, while at the same time it restricted within narrow bounds the armament of Germany. The allied governments showed little indication of a determination to keep their promise, and Germany naturally became restless under the treaty restrictions and demanded the right to rearm. When the allied powers seemed unwilling to grant this right immediately, she virtually wrecked the Disarmament Conference by withdrawing from it. She also at the same time announced her intention to withdraw from the League of Nations.

Rôle of the United States.—During the discussions on disarmament, the United States exerted its influence in favor of moderation and also displayed in some respects a greater willingness for international coöperation. On May 16, the day before Hitler was scheduled to make an important speech to the Reichstag, President Roosevelt addressed a message to the heads of more than fifty governments urging all nations to abolish offensive weapons, to reduce their armaments, and to enter into a pact of non-aggression, agreeing to send no armed forces into the territory of another nation. He also warned any nation against assuming the responsibility of causing the failure of the Disarmament Conference. These remarks, without mentioning particular governments, were evidently aimed especially at Germany and Japan. The result was probably to bring about a more moderate tone in the address which Hitler delivered the following day.

Coöperation for Peace.—Progress was made during the year by the United States in the direction of international coöperation with reference to disarmament. We gave our support to the British draft convention which was used as a basis of discussion. We indicated our belief that armies should be reduced to the minimum necessary for domestic police forces. We also recognized to some extent the validity of the French thesis that security is a necessary prerequisite to disarmament. We indicated our willingness to help to contribute to the general security through the adoption of particular measures, including international supervision of armaments, and consultation with other powers when peace is threatened, with a view to averting conflict. We were willing not only to submit to international supervision of our armaments, but also to assist in formulating such supervision and to participate in it. In the words of Norman H. Davis, our leading representative at the Disarmament Conference, "in the event that the states, in conference, determine that a state has been guilty of a breach of the peace in violation of its international obligations, and take measures against the violator, then, if we concur in the judgment rendered as to the responsible and guilty party, we will refrain from any action tending to defeat such collective effort which these states may thus take to restore peace." He also declared that the "simplest and most accurate definition of an aggressor is one whose armed forces are found on alien soil in violation of treaties."

The position of the United States, as thus stated, was that if, for example, the powers should decree an economic blockade against an aggressor, we would not insist on our right to continue to trade with such aggressor. This might involve coöperation with the League of Nations if that body attempted to apply economic sanctions to punish or hold in check an aggressive nation. It might also tend to implement the Kellogg-Briand anti-war pact. It might go a considerable distance toward the abandonment by the United States of its policies of isolation, of freedom of the seas, and of its rights of neutrality under such circumstances. It will be noticed, however, that a condition was attached to American coöperation in this respect, namely that we concur in the judgment rendered as to the responsible and guilty party. This really leaves us a large measure of freedom of action. Moreover, Congress has given evidence of unwillingness to allow the President, even in consultation with other powers, to designate one party to a dispute as an aggressor for fear that such designation may involve us in a war whose issues do not directly affect or interest us.

The Arms Embargo Resolution.—Traffic in arms is recognized as an influence facilitating the waging of war.

Profits derived by governments and private manufacturing concerns from the sale of arms tend to dull their sense of abhorrence of war. In an attempt to check this evil, an arms embargo resolution was favorably reported in January by the Senate Committee on Foreign Relations which would authorize the President, after securing the coöperation of other governments, to impose an embargo on arms whenever he finds that anywhere in the world such conditions exist "that the shipment of arms or munitions . . . may promote or encourage the employment of force in the course of a dispute or conflict between nations." In May, however, the Senate Committee adopted an amendment to the resolution according to which any Presidential determination invoking the arms embargo would have to apply to all the parties to the international dispute whom it would affect. The enactment of the resolution with this amendment was intended to prevent the United States from taking action against any particular aggressor nation. It would be difficult to determine which is the aggressor nation. On the other hand, it should be noted that to declare an embargo against both parties to a dispute would actually favor the party that was best prepared before the conflict.

Sentiment for Aloofness.—The attitude of the Senate Committee as evidenced by this amendment is one that is held by a considerable section of public opinion in the United States. Those who hold this view believe that if the United States should take sides in a European conflict by joining with a group of powers in designating a particular nation as an aggressor, it will almost certainly involve us needlessly in war. They believe that the advent of Hitler and the resurgence of narrow nationalism in Europe are very likely to bring in their train a new World War which the United States should stay out of if at all possible. The probabilities are that we will not be able to keep out of it, but at any rate we should not give up our right to remain neutral except in return for adequate compensating advantage.

The policy of the Roosevelt Administration, as represented by Norman H. Davis, seemed to be that we could afford to make a concession with reference to our neutral rights if the principal powers of Europe would agree to a reduction of armaments to a defensive basis or domestic police force. If such agreement could be reached the possibility of offensive war would be eliminated and our abandonment of the right of neutrality would not matter. The growing menace of Hitlerism, however, renders it impracticable to reach such an agreement, and this was especially evident after the withdrawal of Germany from the Disarmament Conference and also practically from the League of Nations. This development cuts the ground from under the argument in favor of the abandonment of our neutrality, and there have been evidences that this is realized by the Administration. For example, after the withdrawal of Germany from the Disarmament Conference, Mr. Davis issued a statement declaring that the United States is in no way politically aligned with any European power. This was to soothe the feelings of those Americans who thought we were acting too closely in harmony with Great Britain and France. Dr. Davis added that we would take no active part in the consultations being carried on between the capitals of Europe as their implications were clearly political. He subsequently left Geneva, and in Washington Secretary of State Hull issued a statement that the United States would remain aloof from the Disarmament Conference until the question of arms reduction was again brought up for direct consideration.

In this connection it is also to be noted that in July the United States launched a three-year naval construction program calling for 32 warships at a cost of $238,000,000. Secretary of the Navy Swanson declared that the purpose of the Administration was to build up our navy to the limits of the London Naval Treaty. This development indicated a weakening of the belief of our Government in the success of the Disarmament Conference and a growing lack of confidence in the efficacy of the existing peace machinery.

WORLD ECONOMIC CONFERENCE

London Meeting.—Since the end of the World War there has been a resurgence of nationalism which has been evidenced in economic warfare on a large scale, as embodied in high tariffs, import quotas and other devices. This situation seemed to point to the desirability of the reduction or limitation of economic weapons by international agreement. Hence, an economic conference was called under the auspices of the League of Nations to meet in London for the discussion of these questions. The principal nations of the world, whether members of the League or not, were invited to attend.

Preliminary Conversations. — In order to prepare the way for the discussions at the London Conference, President Roosevelt in April invited about a dozen governments, including those of Great Britain and France, to send their representatives to Washington for preliminary conversations. These invitations were accepted, but the abandonment by the United States of the gold standard shortly before the beginning of the Washington conversations increased the difficulty of reaching even preliminary agreements regarding the questions at issue. Although frank interchanges of opinion took place between President Roosevelt and the representatives of the various powers, no definite settlement was reached and the results of the discussions were very vague and general. Nevertheless they led to a better appreciation by the respective governments of the realities of the situation.

American Delegation.—The delegates of the United States to the Conference included the Secretary of State and two members of the Senate. President Roosevelt made several unsuccessful attempts to secure the services of a Republican on the commission, but finally prevailed on Senator Couzens of Michigan to serve. The Conference opened on June 12, three days before an installment of the war debts was due to the United States. Although the question of the debts was not on the agenda of the Conference, Prime Minister MacDonald in his opening address could not refrain from alluding to them as a complicating circumstance in international relations, somewhat to the embarrassment of the American delegates.

The Tariff Truce. — The United States opposed the raising of the war debt issue at the Conference, but favored an approach toward the problem of economic disarmament. In order to pave the way to this end, the United States proposed a tariff truce to extend during the period of the conference. This proposal was accepted by most of the important powers, with certain reservations. On account of the depreciation of the American dollar, with the resulting advantage to our export trade, France asserted the right to raise her import duties in order to offset this advantage.

Currency Stabilization. — A question on the agenda was that of currency stabilization. In view, however, of the depreciation of the currency in the United States and its departure from the gold standard and of the division of interest between the gold bloc and the sterling bloc, an agreement on this topic seemed difficult of realization. The gold bloc proposed the adoption of a declaration favoring the gold standard and a return to it as soon as possible. At this juncture, however, President Roosevelt issued his celebrated statement of July 3 in which he declared that he "would regard it as a catastrophe amounting to a world tragedy if the great conference of the nations . . . should . . . allow itself to be diverted by the proposal of a purely artificial and temporary experiment affecting the monetary exchange of a few nations only." The gold bloc, led by France, took the view that the American attitude made it impossible for the conference to accomplish anything and that it might as well adjourn. Secretary Hull, however, was able to prevail on the conference not to take this precipitate step, but it was evident that no agreement on major points of difference was in sight. Three weeks after the issuance of the President's statement, the conference adjourned after providing for an executive committee to pave the way for a possible reconvening of the conference at an undetermined future date.

Although the American attitude toward the work of the conference was severely criticised by representatives of other nations, especially of the gold bloc, it also had its defenders. It seemed to be based upon the thesis that economic conditions must be stabilized before currencies can be stabilized. Although the United States was desirous of meeting other nations at least half way in projects of international coöperation, our main concern at this junction was internal recuperation and recovery from the economic depression. President Roosevelt was not inclined to allow anything to interfere with his recovery program which he felt depended in considerable measure upon a rise of prices. Stabilization of the currency would interfere with the accomplishment of this object.

WAR DEBTS

The question of the so-called allied war debts owed to the United States did not reach a settlement in 1933 and the arguments, both official and non-official, for and against cancellation, continued. Although nominally we have collected some billions of dollars in principal and interest, in reality we have collected practically nothing because the allied governments have in the main, paid us only what they were able to collect from Germany in the form of reparations, and Germany has paid the allied governments reparations only to the extent that she was able to borrow the money from us with which to pay them. When, on account of the economic depression, we were unable longer to lend money to Germany, reparations stopped and, when reparations stopped, debt payments to us also practically ceased. The debt settlements called originally for payment in gold, but of course there is in the whole world outside of the United States not much more than half as much gold as the amount of the debts still due us. These debts were not incurred originally in the form of gold or money but in the form of goods, and economic law substantially prevents them from being paid back except in the form of goods or services. To receive payment in goods, however, would mean that we would have to accept a so-called unfavorable balance of trade and to re-shape radically our economic and industrial life. This we shrink from doing, and we keep our tariff rates high in order to prevent it. We thus preclude payment of the debts in the only way they can be paid and unwittingly connive at the cancellation, or at least reduction, of the debts. The amount of the debts was estimated on the basis of the capacity of the debtor to pay, but their actual payment depends rather upon the capacity of the creditor to receive. It is true that some debt payment might be made through invisible imports, such as the expenditures abroad of American tourists, but with the coming of the depression, the number of American tourists abroad has greatly decreased, while the debts, through the accumulation of unpaid interest and the fall in prices, have been increasing. Another suggestion is that American securities held abroad might be taken up by the debtor nations and sold in the United States, the proceeds to be applied on the debts. But in this case the interest on such securities now sent abroad would cease and this would tend to intensify the problem of debt payment in gold.

It seems fairly obvious, therefore, that since the debts cannot be paid in gold and cannot be paid in goods without dislocating our economic life, we must accept the ultimate prospect of reduction, and probably cancellation. Since the majority of the American people, however, still seem to insist on payment, it is not politically feasible for the United States Government to agree to cancellation, or even reduction, without obtaining some compensating advantage. Consequently, our negotiations with the debtor nations have recently turned toward exploring the possibility of finding some such compensating advantage which could be agreed upon, but thus far no such solution has been found. One suggestion has been that we might agree to a reduction in the debts in return for a commensurate reduction in the armaments of the allied powers, thus enabling us to reduce our own armament and save expense accordingly. A reduction in expense for armament by the allied governments, however, would not release funds which could be applied on the debts to us, because the one expenditure is domestic while the other is international. Another suggestion is that the allied governments extend to us trade advantages in exchange for concessions in regard to the debts. This seems to have been the main purpose of the negotiations carried on by the Roosevelt Administration during 1933, but they have not met with success. It is to be remembered that the Administration does not have a free hand in the matter, since no reduction or cancellation of the debts can be made without the consent of Congress. Confronted with this *impasse,* the Administration has fallen back upon the plan of taking what payments the allied governments are willing and able to make and leaving time to bring about a more satisfactory solution of the question. In accordance with this plan, some governments, including Great Britain and Italy, have made "token" payments representing about 10 per cent or less of the amount due. Such payments at least acknowledge the debt and are held by President Roosevelt not to constitute a default. Other nations, including France, have paid nothing during the year and have thus virtually defaulted.

THE RECOGNITION OF RUSSIA

The policy of non-recognition of Soviet Russia, maintained by Presidents Wilson, Harding, Coolidge and Hoover, was reversed by President Roosevelt. It is true that commerce between the two countries had not been altogether cut off, although it was felt that it was hampered by the lack of direct diplomatic relations. Moreover the fact that the United States could not altogether ignore the existence of Russia as one of the important powers of the world was shown by the fact that on several occasions we had been in indirect relations with her. For example, the United States and Russia were cosignatories of the Kellogg Pact and in 1929 the United States had reminded Russia of her obligations under that instrument, the admonition to her being sent through the French Foreign Office. Again, the United States and Russia have both been represented at various international conferences, among the latest of which were the Disarmament Conference and the London Economic Conference of 1933. The delegates from the two countries to such conferences had the opportunity, which they no doubt used, of discussing matters of common concern. Such indirect relations with Russia, however, did not constitute recognition in the technical sense, because there was no intention of according it. Nor was there any such intention when, in May, President Roosevelt, in addressing the peoples of the world, sent a message directly to the Soviet Government.

This event has an interesting bearing upon the development of the recognition policy of the United States and is noteworthy in that the entire process of recognition was carried out under the sole responsibility of the President and without the participation of Congress. The Senate, however, will be called upon to confirm the President's nomination of an ambassador to Russia and Congress will be expected to appropriate the funds for his salary. (For further particulars see "United States Recognition of Soviet Russia," p. 63).

THE UNITED STATES AND THE FAR EAST

The invasion by Japan of Manchuria and the setting up of the puppet state of Manchukuo continued to receive attention from the League of Nations through its Committee of Nineteen. It was proposed in a resolution of the Assembly that the United States and Soviet Russia should be added to this Committee, but this was opposed by Japan. In February, the League Assembly finally decided to condemn Japan. The United States indicated its approval of this decision, and continued to maintain its policy of non-recognition of Manchukuo. Japan had evaded the Kellogg Pact by the simple expedient of not declaring war, but had finally been condemned through the machinery of the League. Japan thereupon announced her intention of withdrawing from the League. She maintained that such withdrawal would not deprive her of rights in her mandated territories, in one of which—the island of Yap—special interests of the United States were recognized by Japan at the Washington Conference of 1921.

The American policy of non-recognition of territorial gains secured through aggression, even though backed up by the League of Nations, has not prevented Japan from attaining her military objectives in Manchuria. This policy was adopted by the United States as an alternative to the imposition of sanctions, which would probably have involved us in war. Neither the United States nor the members of the League felt that they had a sufficient interest in Manchuria to justify them in going to war in order to stop Japan. The policy of non-recognition may turn out to have been a mere temporary expedient, but the ultimate policy of the Roosevelt Administration toward the situation in the Far East has not yet been disclosed. Even before his inauguration, however, the President declared that "American foreign policy must uphold the sanctity of international treaties."

THE UNITED STATES AND LATIN AMERICA

Disturbed Spots in South America.—The disputes between South American countries with reference to Letitia and the Chaco continued in 1933, but efforts toward peaceful settlement were made by various agencies, including neutral South American countries, the United States, the League of Nations, and the signatories of the Kellogg-Briand Pact. The diplomatic representatives of the signatories of the Pact in Washington were called together by the American Secretary of State in a conference which sent a note to Peru reminding her of her obligations thereunder. The League of Nations appointed a Committee of Three to attempt to bring about a settlement of the Letitia controversy, and the United States indicated its willingness to coöperate with the League in accomplishing this end. In March the League Council adopted a report condemning Peru, called upon her to withdraw her forces from Letitia, and appointed a committee to bring about such withdrawal. The United States accepted an invitation to be associated with this Committee, on condition that we would not be bound in advance by the Committee's actions. We were unable to coöperate with the suggestion that an arms embargo be imposed upon Peru, in the absence of approval by Congress of a resolution giving the President authority to declare such an embargo. Peru, however, was induced to sign an agreement with Colombia for the evacuation of the Letitia area and for the administration of the disputed territory by a League of Nations commission. The support of the United States in this undertaking was shown by the fact that an officer in the United States Army served as a member of the League Commission.

The Chaco War.—The Chaco War continued between Paraguay and Bolivia until the so-called "Christmas Truce" in December which emerged from the efforts for peace exerted by the United States and the Latin-American nations represented at the Montevideo Conference. It was confidently expected that this truce would end in demobilization and in the arbitrations of a conflict that had raged for a year and a half and had cost some 100,000 lives. In both the Letitia and Chaco affairs, the United States showed itself desirous of restoring peace and of welcoming the efforts of the League in this direction. There was no suggestion that the intervention of the League in South America in any way ran counter to the principle of the Monroe Doctrine. The United States, however, declined to be represented on a League of Nations commission on the Gran Chaco. That there is still some feeling against the Monroe Doctrine in South America is shown by the fact that Argentina, in joining the League of Nations, did so with a reservation against the Monroe Doctrine. At the outset of his Administration, President Roosevelt made a strong effort to allay any fears which Latin-America might have of aggression on our part. He declared that our relations to the countries of Latin-America would be based on the principle of the "good neighbor."

Cuba. — President Roosevelt appointed as ambassador to Cuba Sumner Welles, Assistant Secretary of State in charge of Latin-American affairs. This was an important position in view of the unsettled conditions in Cuba, due to the efforts of various opposition groups to oust the Machado regime. Mr. Welles attempted to settle the differences between the factions by acting in his personal capacity as mediator. Although this mediation was accepted by some of the factions, it aroused opposition from some of the groups opposing Machado. Mr. Welles was unable to bring the hostile factions into agreement and in August Machado was compelled to abdicate. Disorder increased and under these circumstances, the possibility of American intervention for the restoration of order was visualized. Our warships were despatched to Cuban waters to protect American lives if necessary, but every effort was made to avoid intervention in Cuban internal affairs. The short-lived Cespedes regime was followed by the Grau San Martin government, and in September Secretary of State Hull issued a statement declaring that the chief concern of the United States was Cuban self-determination and that we would welcome any Cuban government representing the will of the people and capable of maintaining law and order. It thus appeared that any government in Cuba which we feel justified in recognizing must have these two characteristics. With the continuance of chaotic conditions in Cuba, the United States was not convinced that the Grau San Martin government fulfilled both requirements and therefore recognition was withheld. Ambassador Welles was recalled and in his place Mr. Jefferson Caffery, assistant secretary in the State Department, was sent to Cuba but as a presidential special agent and not as duly accredited ambassador, which would have implied recognition.

The Montevideo Conference.—The great restraint displayed by the United States toward Cuba was probably due in part to the imminence of the seventh Pan-American Conference which met in Montevideo early in December, attended by the 21 independent American nations. The importance which the United States attached to the work of this conference was shown by the fact that our delegation was headed by Secretary of State Hull. One of the important questions to be discussed at this Conference was the right of intervention by one state in the affairs of another. The withdrawal of the United States from Nicaragua and our moderation toward Cuba showed the trend of our policy. Especially since the failure of the London Economic Conference, it has become a cardinal principle of the Roosevelt foreign policy to cultivate closer and more friendly relations with the nations of Latin-America.

UNITED STATES RECOGNITION OF SOVIET RUSSIA

By Vera Micheles Dean

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CHANGE IN AMERICAN SENTIMENT

President Roosevelt's decision—announced Oct. 20, 1933—to discuss the establishment of diplomatic relations with the Soviet government after sixteen years of official non-intercourse did not come as a surprise. Public sentiment in this country, at first distinctly hostile to the Soviet system, had undergone a marked change in recent years. Recognition had been advocated in many quarters on the ground that it would increase American exports to the Soviet Union and act as a brake on Japanese aggressiveness in the Pacific. It may be interesting, at this time, to review the factors which have determined American policy toward the Soviet government since 1917, and to analyze the main points of the negotiations which preceded recognition.

RELATIONS WITH THE KERENSKY GOVERNMENT

The March 1917 revolution, which resulted in the abdication of Tsar Nicholas II and the establishment of a Provisional Government with Prince Lvov at its head, was greeted in Western states as a triumph of democracy. At the recommendation of Mr. Francis, American Ambassador to Russia, the United States promptly recognized the Provisional Government on March 22. The entrance of the United States into the World War early in April materially increased its interest in Russian affairs. On April 6 Mr. Francis strongly recommended a loan to Russia, the entire proceeds to be spent in the United States for the purchase of war material. In May, following an inquiry into "the determination and ability of the Provisional Government to carry on the war, if financial aid is forthcoming," the United States Treasury opened a $100,000,000 credit on behalf of Russia under the War Loan Acts.

The official representative of the Provisional Government, M. Boris Bakhmeteff, was received by President Wilson in Washington on July 5. At the suggestion of Ambassador Francis and Elihu Root, who had visited Russia with a special diplomatic mission, the United States extended credits totaling $325,000,000 to the Provisional Government then headed by Alexander Kerensky. Cash advances made against these credits by November, 1917, when credits were discontinued, totaled $196,601,297.36 and constituted the principal of the so-called Kerensky debt to the United States. This sum was expended by M. Bakhmeteff chiefly for the purchase of war material of various kinds.

PROLETARIAN DICTATORSHIP PROCLAIMED

Allied financial aid, however, failed to strengthen the Provisional Government, and on Nov. 7, 1917 the Bolsheviks proclaimed a dictatorship of the proletariat. Immediately on coming to power the Bolshevik leaders seized banks and factories, nationalized the land, and announced their intention to terminate the war. These measures not only challenged the political and economic institutions of Western states, but created the danger that Germany, having concluded a separate peace with Russia, would be free to launch a decisive attack on the Western front. Ambassador Francis, who had declared that the Soviet government was "established by force and not recognized by the Russian people," refused to communicate officially with Trotsky, People's Commissar of Foreign Affairs, and in February, 1918, left Petrograd for Vologda.

FACTORS IN AMERICAN POLICY TOWARD THE SOVIET

The American government, while maintaining an attitude of watchful waiting, expressed no open hostility to the Soviet régime, and apparently believed that the Russian people were entitled to aid and sympathy in a period of political transition. Even after publication on Feb. 8, 1918 of the Soviet decree annulling all state debts contracted "by the governments of Russian landowners and Russian bourgeoisie," which included the Kerensky debt to the United States, President Wilson, in a message to the All-Russian Congress of Soviets on March 11, stated that, while the American government "unhappily" could no longer render direct and effective aid, it would still seek "to secure to Russia once more complete sovereignty and independence in her own affairs."

Russia's withdrawal from the World War in March, 1918, following conclusion of a peace treaty with

Germany at Brest-Litovsk, created a new problem for the United States. The Allies urged American participation in an armed intervention on Russian soil, for the avowed purpose of strengthening the Eastern front and protecting Czechoslovak prisoners, then on their way to the Pacific, against alleged attacks by Austrian and German prisoners. President Wilson, who at first opposed intervention, finally yielded to the pressure of the Allies and of American public opinion, and on Aug. 3, 1918 issued a decree inaugurating American intervention in North Russia and Siberia. An American expeditionary force of 7,000 men commanded by General William S. Graves was sent to Vladivostok in August, and a contingent of American troops was landed at Archangel in September.

Begun as an act of war against Germany, Allied intervention was continued after the armistice of November, 1918, ostensibly to enable the Russian people freely to choose their political institutions. The end of civil war in 1920, however, and the establishment of undisputed Soviet control removed all justification for continuance of intervention. The American expedition to North Russia had already been withdrawn in June, 1919, and on April 1, 1920 the last of the American troops departed from Siberia.

While Allied forces were still on Russian soil, the Paris Peace Conference attempted to define its policy toward the Soviet government. Lloyd George and Wilson wished to invite the representatives of all Russian parties, including the Bolsheviks, to Paris, a proposal firmly rejected by Clemenceau and Orlando. It was finally agreed that all organized Russian parties should meet at Prinkipo in the Sea of Marmora, and a proclamation to that effect was issued Jan. 22, 1919. The Bolsheviks accepted this invitation Feb. 4, but the other Russian parties refused to negotiate with ''traitors'' and ''criminal usurpers.''

Undismayed by this refusal, the United States and Great Britain decided to deal directly with the Soviet Government. William C. Bullitt, a member of the staff of the American delegation at the Paris Peace Conference, was sent to Moscow in February to study Russia's political and economic conditions. The Bullitt report to President Wilson, which stated that the Soviet government had become permanently established, was never formally submitted to the Peace Conference nor was it published at the time.

The United States which, after 1919, sought to avoid further entanglements in Europe, appeared to ignore the existence of the Soviet government, and M. Bakhmeteff continued to be recognized as Russian Ambassador until 1922. The motives determining American policy toward the Soviet government were first set forth at length in a note which Secretary of State Colby addressed to Baron d'Avezzano, Italian Ambassador to Washington, on Aug. 10, 1920. The Colby note stated that the United States had no desire to interfere in Russia's internal affairs, but hoped that the Russians would ''soon find a way to set up a government representing their free will and purpose.'' The reluctance of the United States to recognize the Soviet government, he declared, was determined not by its disapproval of Russia's political institutions, but by the attitude of Soviet leaders with respect to debts and Communist propaganda.

M. Chicherin, People's Commissar of Foreign Affairs, answered Secretary Colby's note in a communication transmitted to Baron d'Avezzano on Oct. 4, 1920 by Ludwig Martens, who had acted as unofficial Soviet representative in the United States since 1919. The Soviet Commissar declared that ''the elementary economic needs of the peoples of Russia and of other countries demand normal relations and exchange of goods between them,'' and that he was fully aware that ''the first condition of such relations is mutual faith and non-intervention on both parts.'' No reply was returned to this communication by the State Department, and M. Martens was forced to leave the United States in 1921.

Following President Harding's inauguration on March 4, 1921 M. Litvinov, then Soviet representative in Estonia, transmitted an appeal from Michael Kalinin, President of the All-Russian Central Executive Committee, to the new administration to re-establish business relations and remove "the wall" existing between the two peoples. This appeal met with no encouragement from the United States. On March 25, 1921 Secretary of State Hughes replied through the American consul at Reval that, until the American government was convinced that fundamental changes "involving due regard for the protection of persons and property and the establishment of conditions essential to the maintenance of commerce" has taken place in Russia, it was unable to perceive that there was "any proper basis for considering trade relations."

American policy was reiterated by President Coolidge in his message to Congress Dec. 6, 1923. The United States, he said, did not propose "to enter into relations with another régime which refuses to recognize the sanctity of international obligations," or "to barter away for the privilege of trade any of the cherished rights of humanity." On Dec. 16 Chicherin cabled President Coolidge that the Soviet government was ready to discuss the problems mentioned in the President's message on the principle of mutual non-intervention in internal affairs, and was prepared to open negotiations with a view to the satisfactory settlement of American claims, "on the assumption that the principle of reciprocity will be recognized all around," thus indicating the existence of Soviet counter-claims. On Dec. 18, 1923 Mr. Hughes stated that, if the Soviet government were ready to restore American property confiscated during the revolution and repeal the decree repudiating Russia's pre-revolutionary debts, it could do so without preliminary conferences or negotiations. "Most serious," he added, "is the continued propaganda to overthrow the institutions of this country. This government can enter into no negotiations until these efforts directed from Moscow are abandoned."

Secretary of State Kellogg repeated these views in 1928, when he said that the continuance of Communist propaganda "made vain any hope of establishing relations on a basis usual between friendly nations." Secretary of State Stimson also declared in December, 1930 that the United States would not recognize the Soviet government until the latter had acknowledged its debts, guaranteed proper compensation for American property confiscated in Russia, and ceased to agitate for the overthrow of American institutions by revolution.

SOVIET-AMERICAN TRADE

Opponents of recognition pointed out that, despite absence of official relations between the two countries, the United States ranked until 1931 as one of the principal markets for Soviet purchases, and that in 1930—the high-water mark of Soviet-American trade—American exports to the Soviet Union totaled $114,398,537. The decline in Soviet-American trade which set in after 1931 was generally attributed to three main factors: decrease in the purchasing power of the Soviet Union, lack of American credits, and administrative restrictions on Soviet exports to the United States. Many American business and political leaders argued that recognition, by encouraging the extension of credits and removing administrative restrictions on Soviet goods, would increase trade between the two countries. They also declared that, once official relations were established, the United States and the Soviet Union would be in a position to collaborate effectively with respect to disarmament and the Far East, two issues in which both have a vital interest. The American government, however, made no move in the direction of recognition until Oct. 10, 1933 when President Roosevelt, in his note to President Kalinin, expressed readiness to receive Soviet representatives and explore with them all questions outstanding between the two countries.

NEGOTIATIONS LEADING TO RECOGNITION

Ten days of uninterrupted and closely-guarded negotiations at Washington culminated on Nov. 16, 1933 in the establishment of diplomatic relations between the United States and the Soviet Union, effected by an exchange of notes between President Roosevelt and Maxim Litvinov, Soviet Commissar of Foreign Affairs. On the following day the President announced that William C. Bullitt, who had played an active part in the negotiations, had been appointed first American Ambassador to the U. S. S. R.

The length of the Roosevelt-Litvinov negotiations had caused surprise and even anxiety in some quarters. President Roosevelt, however, was apparently determined not only to avoid giving an impression of undue speed, but to adjust the disputed questions of propaganda, religious liberty and legal protection of American nationals before recognition, thus leaving no loophole for criticism by anti-Soviet groups in this country.

The pledges given by M. Litvinov on these points are more explicit and far-reaching than those obtained by other Western states which have recognized the Soviet government. Communist propaganda, long an obstacle to recognition, received particularly careful treatment. The Soviet government undertook "to respect scrupulously the indisputable right of the United States to order its own life within its own jurisdiction in its own way and to refrain from interfering in any manner in the internal affairs of the United States, its territories or possessions." While the Third International, for whose activities the Soviet government has repeatedly disavowed responsibility, was not mentioned by name, the U. S. S. R. promised "to restrain all persons in government service and all organizations in receipt of any financial assistance from it, from any act overt or covert liable in any way whatsoever to injure the tranquility, prosperity, order, or security of the whole or any part of the United States . . . and, in particular, from any act tending to incite or encourage armed intervention." Identical pledges were given by the United States. The clause regarding armed intervention has been interpreted as practically equivalent to a pledge of non-aggression.

The attitude of the Soviet government toward organized religion also received close attention in the Washington negotiations. In reply to President Roosevelt's detailed statement regarding the rights to freedom of worship enjoyed by American nationals "in all the major countries of the world," M. Litvinov declared that his government was ready, immediately following the establishment of diplomatic relations, to grant American nationals all rights with respect to freedom of conscience and free exercise of religion enjoyed by other foreigners and to embody these rights in a consular convention.

Opponents of recognition had argued that American nationals would receive insufficient legal protection in the Soviet Union, and had pointed out that the Soviet government refused to admit British counsel at the trial of six British engineers in April, 1933. President Roosevelt met this argument by stating in a note to M. Litvinov that "American diplomatic and consular officers in the Soviet Union will be zealous in guarding the rights of American nationals, particularly the right to a fair and public trial and the right to be represented by counsel of their own choice."

The exchange of notes made no reference to the situation in the Far East which, it is assumed, was thoroughly explored by President Roosevelt and M. Litvinov. The appointment of Alexander Troyanovsky, Soviet Ambassador in Tokyo until January, 1933, as first Soviet Ambassador to Washington would indicate that the Soviet government attaches paramount importance to Soviet-American coöperation in the Far East. This aspect of recognition was stressed by President Roosevelt in a speech at Savannah Nov. 18, when he said that "the most impelling motive" of Soviet - American conversations had been "the desire of both countries for peace and for the strengthening of the peaceful purposes of the civilized world.''

THE QUESTION OF DEBTS AND CLAIMS

The Roosevelt-Litvinov negotiations led to no official agreement regarding settlement of debts and claims or extension of credits to the Soviet government, two questions which will form the subject of subsequent discussion. They resulted, however, in elimination of counter-claims the Soviet government had intended to press with respect to American occupation of Siberia in 1918-1920. M. Litvinov stated that, following examination of documents relating to that period, the Soviet government had decided to waive all claims arising out of American intervention in Siberia, a waiver which did not cover Soviet claims concerning the American expedition to Archangel. The Soviet Union thus recognized that, both in the course of intervention and at the Washington Conference of 1921, the United States not only made no attempt to appropriate Russian territory but vigorously opposed Japanese encroachments in Siberia.

The claims of the United States against the Soviet Union total about $800,000,000, of which $332,519,891 represent the principal and interest of the Kerensky debt, and $441,000,000 the claims of private firms and individuals for property confiscated during the revolution. Soviet negotiations with Great Britain and France during the past decade have as yet led to no settlement of debts or private claims. The Soviet government, however, may offer to adjust American claims by paying additional interest on public and private credits, this interest to be used for gradual liquidation of debts and claims.

THE QUESTION OF CREDITS EXTENSION

The second question which awaits settlement concerns extension of American credits. At the World Economic Conference M. Litvinov declared that his government was ready to place orders for raw materials and manufactured goods totaling $1,000,000,000, provided it received adequate credit facilities. That this declaration was of more than academic interest to the United States was indicated last July when the Reconstruction Finance Corporation authorized loans totaling $4,000,000 to American exporters to finance the purchase of cotton by the Amtorg Trading Corporation. The R. F. C. and the Farm Credit Administration have since been negotiating with the Amtorg regarding the sale of cotton and copper, and the sum of $200,000,000 has been mentioned as the possible total of credits to be granted by the United States. The Roosevelt Administration might extend these credits direct, either through the Reconstruction Finance Corporation or a special organization for the financing of Soviet-American trade. It might, on the other hand, follow the example of Great Britain and Germany, and guarantee a specified portion of credits extended by private bankers.

That the Soviet Union needs not only manufactured products of all kinds, but consumers' goods and technical assistance as well, is beyond doubt. Repayment of credits, however, raises a number of questions. The Soviet government, which has bought on credit for a number of years in Europe, has hitherto scrupulously fulfilled its financial obligations. In the long run, however, it will be able to repay substantial American credits only by increasing sales of its products in the United States or elsewhere. In 1930, the boom year of Soviet-American trade, American exports to the Soviet Union were nearly five times the value of our imports from that country, and the Soviet government paid for its purchases with the proceeds of sales in Great Britain and other countries with which it had a favorable balance of trade. The United States cannot depend on indefinite continuance of this situation and must be ready to accept Soviet goods. The difficulty is that the principal Soviet products for which a market exists in the United States—manganese, lumber and anthracite—have in the past encountered opposition from domestic producers. Meanwhile the Soviet government which, through its monopoly of foreign trade, exercises sole control over exports and imports, is reluctant to undertake financial obligations in the United States which it might eventually find it difficult to meet.

LATIN-AMERICAN RELATIONS

By Graham H. Stuart

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QUESTIONS OF POLICY

Policy of the New Administration.—President Roosevelt came into office at a rather auspicious period in Latin-American relations. The Hoover Administration had not only sponsored the arbitration and conciliation treaties of 1929 which were to banish the bugbear of intervention, but had given proof of its good intentions by ordering the withdrawal of all the marines from Nicaragua. President Roosevelt was eager to continue this policy of conciliation and friendship so that the United States might enter the forthcoming Pan-American Conference with a record unmarred by any word or act which might indicate a departure from a policy of sincere coöperation.

Good Neighbor Policy.—The keynote of the Roosevelt attitude was sounded in an address made by the President before a special session of the Governing Board of the Pan-American Union on Pan-American Day, April 12, 1933. He repeated the statement made in his inaugural address that he would "dedicate this nation to the policy of the good neighbor—the neighbor who respects his obligations and respects the sanctity of his agreements in and with a world of neighbors."

After noting the great need of neighborly coöperation today, he declared that the essential qualities of a true Pan Americanism were those which constitute a good neighbor, namely mutual understanding and sympathetic appreciation of the other's point of view. The Monroe Doctrine, he said, was a Pan-American doctrine of continental self defence directed solely at the maintenance of independence by the peoples of this continent. And hand in hand with this doctrine the peoples of the American republics understand that the independence of each republic must recognize the independence of every other republic. In conclusion, as a concrete example of effective Pan Americanism, he declared it to be "of vital importance to every nation of this continent that the American governments, individually take, without further delay, such action as may be possible to abolish all unnecessary and artificial barriers and restrictions which now hamper the healthy flow of trade between the peoples of the American republics."

Policy of Non-aggression. — The Latin-American states were also encouraged to expect an anti-imperialistic policy by the message of President Roosevelt of May 16, 1933, sent to the 54 sovereigns and presidents of the nations participating in the World Economic Conference and the Disarmament Conference. The particular sentences which were appreciated south of the Rio Grande were the proposals that "all the nations of the world should enter into a solemn and definite pact of non-aggression . . . and individually agree that they will send no armed force of whatsoever nature across their frontiers."

DIPLOMATIC REPRESENTATION

The Roosevelt Administration followed its predecessor's policy in appointing career men for the most part to the Latin-American posts. Hugh Gibson, named ambassador to Brazil, is one of the best known career men in the service. Alexander Weddell, appointed ambassador to Argentina, although called from private life, had been in the foreign service of the United States for about twenty years. Owing to the critical situation in Cuba, Sumner Welles, one of the newly appointed assistant secretaries of state and formerly chief of the Division of Latin-American Affairs, was sent temporarily; his successor, Jefferson Caffery, is also a career man. A number of career men have remained unchanged in their posts: Fred Dearing, ambassador to Peru; J. Butler Wright, minister to Uruguay; Norman Armour, minister to Haiti; William Dawson, minister to Ecuador; George Summerlin, minister to Venezuela; Julius Lay, minister to Honduras; H. F. A. Schoenfeld, minister to the Dominican Republic, and Charles B. Curtis, minister to El Salvador. Sheldon Whitehouse has been transferred from his post as minister to Guatemala to a similar position in Colombia. Mathew Hanna, minister to Nicaragua, succeeds him at Guatemala, and Arthur B. Lane, counsellor of embassy at Mexico City, has been promoted to minister to Nicaragua.

The outstanding exceptions to this policy have been the appointment of Josephus Daniels to Mexico to supplant J. Reuben Clark, who had made such an enviable record toward cementing better relations, and the naming of Hal Sevier, a Texas Democrat, to replace William Culbertson, a man of wide diplomatic experience in Chile. Several other non-career men have received appointments, among them Meredith Nicholson, well known author, to Paraguay, and Leo Sack, a newspaper man, to Costa Rica, but more than two-thirds of our new diplomatic representatives in Latin-American states are career men.

TRADE AGREEMENTS

Informal discussions were carried on in Washington during the year with the diplomatic representatives of a number of Latin-American states, to determine not only what products might be exported from the United States in greater quantities, but also what might be imported in greater volume. This would appear to be a major shift in policy in that trade is recognized to be a mutual proposition. During July the United States instructed its diplomatic representatives in Buenos Aires, Rio de Janeiro, and Bogotá to inform the foreign offices that exploratory studies had begun with the possibility of negotiating trade agreements. Similar negotiations with Cuba were also contemplated.

LATIN-AMERICAN LOANS

The Senate Investigating Committee on Foreign Loans continued its work and unearthed further unsavory details of procedure in loans made to Latin-American countries. The loans of the Chase National Bank to the Machado government in Cuba were given particular attention. It was disclosed that President Machado had credit at the Chase Havana branch up to $200,000, that H. W. Catlin, associate of Machado, and Dr. Cartaga, former Cuban Secretary of the Treasury, had collected as legal fees in connection with bank loans $55,000 and $87,000, respectively. Furthermore, when the Chase Bank purchased a $40,000,000 long term issue of Cuban bonds in 1930, the bankers' certificates of an earlier loan were retired in advance of certificates of an earlier maturity date in the hands of the public.

Assistant Secretary of State Caffery, in a national broadcast on Sept. 5, declared that during the period 1920-1932 over $1,680,000,000 of Latin-American securities were floated in the American market, of which $892,000,000, or 66 per cent are today in either complete or partial default. The Administration hoped that the Security Act of 1933, which compels the house issuing a foreign loan to file sufficient data with the Federal Trade Commission to evaluate the merit of the loan, will prevent a repetition of such practices in the future.

SEVENTH PAN-AMERICAN CONFERENCE

Agenda.—One of the outstanding events of the current year was the seventh international conference of American states which met in Montevideo, Uruguay, Dec. 3, 1933. The agenda was an elaborate one comprising problems of international law and the organization of peace, economic, financial, and social problems, improvement of transportation, and further developments in the field of intellectual coöperation. As regards the organization of peace, an interesting development was the Argentine Anti-War Pact modeled upon the Pact of Paris, which had been signed by Argentina, Brazil, Chile, Mexico, Paraguay, and Uruguay before being discussed at the Conference. In addition to outlawing wars of aggression and compelling a settlement of disputes by legal means, it outlawed violence in settling territorial questions and followed the Hoover-Stimson doctrine of non-recognition of territorial changes brought about by force. As a sanction the signatory powers agreed to exercise the political, judicial, and economic means authorized by international law, as well as the influence of public opinion, "but in no case shall they resort to intervention either diplomatic or armed."

Economic Problems.—Tariffs and currency stabilization were the first two items under the economic and financial section of the agenda. In fact, this part of the program began with a quotation from the resolutions of the fourth Pan-American Commercial Conference of 1931, which recommended the greatest possible reciprocal tariff reductions and a complete study of all questions relative to currency stabilization. Although the United States accepted these items on the agenda, on Nov. 10, just before the American delegation left, the State Department issued a statement to the effect that "unsettled conditions, such as European commercial-quota restrictions, have made it seem desirable for the United States to forego immediate discussions of such matters as currency stabilization, uniform import restrictions, permanent customs duties, and the like.

Transportation. — On the other hand, the Roosevelt Administration, as a practical expression of its good-neighbor policy, was very desirous of obtaining betterment in the rapidity of communications and transportation, by air, highway, water, and rail. President Roosevelt offered to recommend to Congress that the United States appropriate $500,000 to have a scientific survey made of the proposed inter-American highway, extending 8,750 miles from Texas to Santiago, Chile. The United States also offered to take the initiative in providing the necessary financial support for the lighting of the airways from Miami to Buenos Aires, which would cut the present travel time of seven days to a little over two.

American Delegation.—The American delegation was headed by Secretary of State Hull and consisted of Alexander W. Weddell, American Ambassador to Argentina; J. Reuben Clark, former Ambassador to Mexico; J. Butler Wright, American Minister to Uruguay; Spruelle Braden, of New York; and Miss S. P. Breckenridge, of Kentucky. Its secretary-general was James C. Dunn of the State Department, and its adviser Ernest H. Gruening of New York.

Work of the Conference.—Among the hundred delegates to the conference were included some ten foreign ministers. As the conference progressed, it was evident that the two principal problems were the maintenance of peace and the improvement of economic conditions. The attitude of sincere friendship on the part of the United States was shown by the speech of Secretary Hull on Dec. 15, when he stated that "each of the American nations wholeheartedly supports the doctrine that every nation earnestly favors the absolute independence, unimpaired sovereignty, perfect equality and political integrity of each nation large or small." To prove it, Secretary Hull supported the Argentine anti-war pact and also the proposal of Argentina and Chile to consolidate the peace machinery by having non-signatory powers sign the five peace pacts available to Latin-American states: the Gondra Treaty of 1923; the inter-American Conciliation and Arbitration Treaties of 1928; the Kellogg-Briand Pact, and the Saavedra Lamos Pact of 1933. The conference finally persuaded Bolivia and Paraguay to agree to a suspension of hostilities and arbitration in the Chaco dispute.

Secretary Hull took the lead in recommending a plan for reducing tariffs by bilateral reciprocity treaties. He also proposed that the European nations be asked to subscribe to a general reduction of tariff and other barriers except for emergency recovery measures. The Conference voted to hold a Pan-American economic conference in 1934 when various subjects such as the Mexican proposal for a moratorium on debts might be considered. It was voted to hold the eighth Pan-American Conference at Lima, Peru.

RELATIONS WITH MEXICO

Rio Grande Convention. — The year's relations with Mexico have been friendly and uneventful. The outstanding achievement was the signing, after seven years of negotiations, on Feb. 1, 1933 at Mexico City, of a convention for the rectification of the Rio Grande between El Paso and Fort Quitman. Ratifications were exchanged in Washington on Nov. 10. The plans include the building of a huge flood storage reservoir at Caballo, N. M., and straightening the channel in the Juarez valley, decreasing the length of the river in this section from 155 to 85 miles. By means of flood control levees, flood waters will no longer be able to inundate the surrounding country, damage property, and endanger human lives. The river will be stabilized in a channel, the middle of which will be the fixed international boundary. The entire project is to be carried out on a basis of strict mutuality without any loss of territory to either party. The cost of completing the project is estimated to be about $6,000,000, and work is to begin as soon as possible.

Immigration.—According to figures released by the State Department for the fiscal year 1932-1933, it would appear that the problem of new immigration from Mexico has been solved through legal channels. Since 1927-28, when more adequate enforcement measures were instituted, the monthly average of Mexican immigrants has dropped from 4,846 to 127.

RELATIONS WITH CUBA

Unrest in Cuba.—During the past year Cuba has taken Nicaragua's place as the focal point of American interest. The administration of President Machado during his second term, which began in 1929, has been one of progressively increasing discontent and opposition. The difficult economic situation, due to the fall in the price of sugar to an all time low of a little over a half cent a pound in 1932, was an important contributory cause. Nevertheless, the closing of schools and the university, the establishment of a rigid censorship, the recruiting of a secret police, the Porra, partly from the ranks of former criminals, and the assassination and shooting down under the *ley de fuga* of students and political opponents in ever increasing numbers, brought matters to a head. In April approximately 1,000 Cuban political refugees in Miami, Fla., representing various political groups opposed to Machado, formed a revolutionary junta. They asserted that a revolution was imminent and a series of bombings and political murders in Havana gave support to their claims.

Downfall of Machado.—President Roosevelt, appreciating the tense situation, sent Sumner Welles, an experienced diplomat, as ambassador to Cuba to help in any way possible. Quoting President Roosevelt to the effect that restoration of political peace was a necessary and preliminary step to Cuba's economic recovery, he offered to mediate between the government and the revolutionary organizations. While negotiations were going on President Machado received from Congress in June the power to continue his military dictatorship until the expiration of his term in 1935. As the basis of mediation was a return to constitutional government, a series of strikes early in August precipitated the political crisis and on Aug. 11 the army revolted and President Machado was forced to flee from the country. Considerable rioting and looting followed, and the United States ordered several naval vessels to Cuban waters as a precautionary measure. President Roosevelt was careful to state that no possible question of intervention or the slightest interference with the internal affairs of Cuba was intended.

Avoidance of Intervention. — In as much as the de Cespedes government which took over the administration followed constitutional procedure, no question of recognition arose and the United States coöperated in every way to ensure its success. Nevertheless, in less than three weeks a new *coup d'etat* overthrew de Cespedes, and another provisional government, headed by Dr. Ramon Grau San Martin, assumed power. This group apparently resented Ambassador Welles' support of de Cespedes, and showed itself openly antagonistic to him. President Roosevelt invited the diplomatic representatives of Argentina, Brazil, Chile, and Mexico to discuss the situation and informed them that the last thing he desired was to interfere in the internal political affairs of Cuba. Following this, Secretary of State Hull publicly stated, on Sept. 11, that the United States was prepared to welcome any government representing the will of the people of the Republic and capable of maintaining law and order throughout the island. Although by the end of the year San Martin had been in control for over three months, recognition was not accorded. However, late in November it was announced, following a hasty trip of Ambassador Welles to Washington, that he would return to Cuba only for a short time and would then be relieved by Jefferson Caffery, who was originally slated for the position and who in the meantime had been serving in Mr. Welles' place as Assistant Secretary of State.

Future of the Platt Amendment.— To a certain extent the United States has been blamed for the existence and continuance of a Machado regime. The provision of the Platt Amendment, which permits the United States to intervene to maintain a government adequate for the protection of life, property, and individual liberty, is a bulwark of protection to the administration in power. It acts as a two-edged sword. The government can use the threat of intervention as a very effective means of stifling armed opposition by the Cubans and at the same time, if this fails, there is always the chance that intervention will prefer the maintenance of the *status quo.* Furthermore, the fact that the United States has the legal right to intervene has seemingly made it lean backward in a policy of non-intervention in order to prove to Latin America as a whole its anti-imperialistic policy. At the Montevideo conference the Cuban Secretary of State made it clear that a revision of the amendment was in order.

THE UNITED STATES IN THE CARIBBEAN

Withdrawal from Nicaragua. — After supervising the presidential elections of November, 1932, American committments were at an end, and on Jan. 2, 1933, all marines were withdrawn. The State Department declared that "no American armed forces will remain in that country either as instructors in the constabulary, as a legation guard, or in any capacity whatsoever." It should be noted, however, that the United States still retains the canal rights acquired under the Bryan-Chamorro treaty, and an American official approved by the State Department continues to collect the customs pledged to the service of the 1909 loan, and the State Department also names two representatives on the commission responsible for payments on the 1918 bonds. General Sandino, who had carried on his guerilla warfare until the marines left, signed an agreement with the government on Feb. 2, which granted his followers amnesty and compensation. He announced that he had never been animated by a spirit of ill will towards the United States, but had fought patriotically to end foreign intervention.

The United States and Haiti.—It will be remembered that on Sept. 3, 1932, the United States and Haiti signed an agreement for the termination of American occupation under certain specified conditions. The Haitian government considered both the financial and military provisions unwarranted and rejected the treaty. In April, 1933, frauds were discovered in the collection of the customs, and an American collector was implicated. The Haitian Senate immediately passed a resolution requesting the United States to permit the people of Haiti to take over the responsibility of administering their affairs, especially their finances. The United States, on April 11, informed the Haitian Government that it waived the American customs officer's immunity, and he was forthwith surrendered to the Haitian courts. Negotiations were thereupon entered into regarding American withdrawal and an executive agreement to this effect was signed Aug. 7 at Port-au-Prince by Norman Armour, representing the United States, and A. Blanchet, representing Haiti.

The agreement provides that the American marine officers and men, some fifty in number, who are training the constabulary, will be withdrawn Oct. 1, 1934, and the Garde d'Haiti turned over to Haitian officers. The American Marine Brigade, comprising some 850 officers and men, will be withdrawn within thirty days after Oct. 1, 1934. The American Scientific Mission will be withdrawn at the same time. In place of the Financial Adviser-General Receiver and his deputy, the President of Haiti, upon nomination of the President of the United States, will appoint a Fiscal Representative and his deputy, who will direct the customs service pledged to the 1922 loan and possess the right to inspect the Internal Revenue Service. As this arrangement is in the form of an executive agreement, rather than a treaty, it will require action by neither American nor Haitian legislative bodies to make it effective. This agreement completes the withdrawal of American troops from the republics of the Caribbean.

Relations With Panama. — The United States was honored by the visit of President Harmodio Arias early in October. He came to obtain the aid of the United States for relief of the unemployed, due to loss of work in the Canal Zone. Other problems discussed were the sovereignty of New Cristobal, an American colony administered by Panama, the assumption of control of radio by the United States, and the restriction of competition offered to private enterprise in Panama by the army commissaries in the Zone. In a joint statement issued Oct. 17, President Roosevelt agreed to curtail those practices of army commissaries which interfered with legitimate native business and to ask Congress for appropriations to repatriate aliens who want to work on canal projects. The General Claims Commission set up under the treaty of 1926 adjourned *sine die* June 30, 1933, after adjusting 26 claims in a manner entirely satisfactory to both sides.

SOUTH AMERICA

The Leticia Dispute. — The relations of the United States during 1933 were largely concerned with attempts to settle the dispute between Colombia and Peru over Leticia and the more serious controversy between Bolivia and Paraguay in the Chaco Boreal. On Jan. 23, 1933, Colombia sent identic notes to the United States and other signatories of the Kellogg-Briand Pact, claiming violation of the Pact in that Peru had unlawfully seized by force Colombian territory. Secretary Stimson immediately despatched a note to Peru indicating that Peru had recognized the sovereignty of Colombia over the Leticia area and that an attempt to modify the Treaty of 1922 by armed support of the illegal occupation of Leticia would be a positive violation of the Pact of Paris. He urged acceptance of the Brazilian proposal of mediation. When this failed and the League of Nations took jurisdiction over the dispute, the United States supported the League plan. When the League set up an advisory commission, including representatives from the United States and Brazil, the United States agreed to appoint a representative to advise with the commission but not to vote. Following this, the League appointed a commission of three representatives of Brazil, Spain, and the United States to settle the question on the spot. Work began late in October and had not been concluded at the end of the year.

War in the Chaco.—The Commission of Neutrals which had been working towards a solution of the Gran Chaco dispute throughout 1932 continued their futile negotiations. When a proposal of Dec. 15, demanding immediate cessation of conflict, demobilization, and arbitration failed, the Commission of Neutrals suggested that representatives of Argentina, Brazil, Chile, and Peru attempt a settlement. When in spite of the ABCP efforts, Paraguay declared war on May 10, the League of Nations decided to act. It appointed a committee of five to visit the area and work out a settlement with the two powers. Just before the League committee sailed a suggestion came from Bolivia and Paraguay that a commission of the ABCP powers be substituted as they were already familiar with the problem. The League accepted the suggestion and a committee of the ABCP worked in vain through August and September to obtain a settlement. Upon its declaration of failure the League appointed a League Commission which arrived in the Chaco area early in November. The United States, through its representative, Francis White, chairman of the Commission of Neutrals, has given notice of suspension of its activities while the League is attempting a solution.

AMERICAN RELATIONS IN THE ORIENT AND NEAR EAST

By Albert Howe Lybyer

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THE LEAGUE OF NATIONS AND MANCHUKUO

Lytton Report.—At the beginning of 1933 the Assembly of the League of Nations was in recess, while its Committee of Nineteen endeavored to effect a reconciliation between the Lytton Report on Manchuria (see The American Year Book for 1932) and the attitude taken by Japan. Since, after repeated attempts, no agreement proved to be possible, the Assembly resumed its session on Feb. 24, and received the following recommendations from the Committee:

1. The Covenant of the League of Nations, the Briand-Kellogg Pact of Paris, and the Nine-Power Treaty of Washington shall be held to apply to the situation.
2. The member States of the League will not recognize "any situation, treaty, or agreement" brought about contrary to treaty obligations.
3. Military pressure should be brought to an end.
4. Settlement should be made according to the ten recommendations of the Lytton Report.
5. The negotiations between Japan and China should be conducted under the supervision of the Assembly of the League.

Out of 43 nations represented, 42

voted ''Yes'' and only Japan voted ''No.'' The Japanese representative, Mr. Matsuoka, after rather defiant words left the Assembly. The Committee of Nineteen, with the addition of Canada and the Netherlands, was requested to follow up the situation and invite the United States and Russia to coöperate, and the Assembly again adjourned to meet on call.

Withdrawal of Japan From the League. — On March 27, Japan, disappointed because her plans were not approved, notified the League of her intention to withdraw at the end of the required two years. Russia declined to sit with the Committee of Twenty-one, but the United States added Hugh Wilson ''for informative contact.'' Subcommittees on embargo and non-recognition were appointed, in accordance with a policy of the ''isolation'' of Manchukuo. The subcommittee on non-recognition reported June 2, substantially along the lines of the ''Stimson Doctrine,'' including exclusion from the international conventions regarding postal service, telegraph, radio, etc., with abstention from currency exchange. The full committee approved this plan July 7, and sent it to the members of the League. Here in general the situation rested, with Japan in disgrace before the League, but proceeding as she pleased in Manchukuo and North China. The question arose, but was not settled, whether in proposing to withdraw from the League of Nations, Japan could expect to hold under mandate from the League the formerly German islands in the North Pacific Ocean which had been assigned to her.

JAPAN AND MANCHUKUO

Japan had previously taken the attitude that the province of Jehol was a part of her puppet, Manchukuo. She began to occupy it on Feb. 21, in very cold weather, for which she had trained her soldiers. Four columns entered by different routes, and met with surprisingly little resistance from superior numbers of Chinese. The capital, Chengteh, was taken March 4, a week in advance of the plan. The fleeing Chinese troops were pursued relentlessly to the Great Wall.

On March 1 a proclamation announced the consolidation of all railway lines in Manchukuo, except the Chinese Eastern, into the South Manchuria Railway Company, whose capital basis was enlarged from 400,000,000 to 1,000,000,000 yen. Plans were announced for increasing the mileage from 5,000 to 15,000, for a system of hard roads, and for providing improved communication between Manchuria and Japan through Rashin in Northern Korea.

A policy was proclaimed of ceasing the attempt to control ''bandits'' by petty operations, and concentrating troops in larger bodies. Intimations were given by Japanese statesmen that the ''open door'' policy could hardly be practiced in Manchukuo in favor of States which refused to recognize its existence, and some evidence was adduced that the door was being closed.

Near the end of the year preparations were made to alter the government of Manchukuo, with, it was said, the elevation of the dictator Pu Yi to the rank of Emperor.

JAPAN AND RUSSIA

The relations of Japan and Russia were strained throughout the year, and talk of impending war was persistent. Russia clearly desired peace, and endured much, but was resolved to fight if her territory should be invaded. The chief contention was over the thousand miles of the Chinese Eastern Railway which lie across the northern part of Manchukuo. The Russians claimed that the Japan-Manchukuo government not only did not protect the line, but interfered with it and damaged it in many ways. On May 11, M. Litvinoff, Soviet Foreign Minister, announced that Russia was willing to sell her rights in the Railway. He contended that China had ceased to have rights there. French holders of Russian bonds set up a claim on the basis that Russia had borrowed from France the money to build this railway. Formal negotiations began in Tokyo on May 23, and dragged on throughout the year.

The Russians were said to have asked at first $200,000,000 while the Japanese offered $12,000,000. In September the Russians published alleged Japanese plans to damage and obstruct the railway further in order to hasten negotiations. War seemed near, but the proposals were modified, though not brought into agreement. Difficulties arose also over the rolling stock of the railway and over the shooting of Japanese fishermen by Russian coast guards.

JAPAN IN NORTH CHINA

Early in the year fears arose that Japan would occupy northern China as far as the Yellow River, but she contented herself with a smaller measure of control. In the first days of January, alleging Chinese provocation, she bombarded and seized Shanhaikwan, at the east end of the Great Wall. Other passes in the wall were occupied later.

After the seizure of Jehol the Chinese Nanking government threatened action toward recovery and refused acquiescence. On April 10, the Japanese advanced south of the Wall, and met with resistance. With superior weapons they killed some 20,000 Chinese. They retreated somewhat April 22-25, but resumed the advance April 30. Hopeless of stopping them by force, the Chinese agreed to a truce at Tangku on May 31. The Chinese would withdraw their troops southward, and the Japanese would retreat to the Great Wall. The triangle between, roughly extending from Tientsin to Peiping, to Shanhaikwan, was to be administered by Chinese friendly to Japan. The Japanese claimed to have reached their objectives, and to intend no further advance south of the Wall. North of the Wall in Inner Mongolia, they carried out some troop movements and limited occupations.

INTERNAL CONDITIONS IN JAPAN

In agreement with the fact that an actual, though not a formal, state of war existed with China, Japan's political and economic psychology exhibited many characteristics of war time. Opposition groups were suppressed, actual or attempted assassinations were frequent, the Diet was pressed to grant increased sums for military and naval equipment and operation, and economic life was inflated. The departure from the gold standard to the extent of about 60 per cent, when combined with low wages and an abundant rice crop, stimulated export trade into something like a "boom." Japanese exports during the first half of 1933 increased by 51 per cent. The sale of cotton goods surpassed that of England, and in general Japan came into fierce trade rivalry with Great Britain in all parts of the world.

In September, however, a distinct change of attitude became apparent, with attempts at conciliation in all directions. The discrepancy between the pacifying words of the Japanese Foreign Office and the aggressive actions of the military party tended to disappear. Count Uchida was succeeded on Sept. 14 as Foreign Minister by Mr. Hirota, who declared that he would work for the improvement of relations with the United States, a non-aggression pact with Russia, the restoration of friendly relations with China, and an economic accord with England. In spite of fulminations from militarists, this policy began to be put into effect.

In the middle of the year the Indian and Malayan governments, alarmed at Japanese commercial inroads, increased the duty on imported cotton goods. The Japanese then asked for a trade conference to be held in India. This was agreed to, and strenuous nogotiations began in September, continuing until the end of the year. A plan was finally adopted whereby Japan agreed to take Indian raw cotton in a certain proportion to the Japanese cotton goods which India would admit, the maximum amount of the latter being considerably less than the amount admitted during the past year.

Behind the almost feverish activity of Japanese leaders stands the fact that the population of the islands, already overcrowded, is gaining more than one million inhabitants per year. These citizens must be provided with sustenance and occupation, and the accomplishment of this, whether by forceful or peaceful means, demands the utmost wise foresight. No country of the world, perhaps, marches toward ends held to be desirable with more scientific method and ordered unity than Japan. The budget approved for 1934 amounted to 2,100,000,000 yen, and demanded an increase of debt to the amount of 800,000,000 yen. This deficit was approximately the same as the proposed military and naval expenditure.

INTERNAL CONDITIONS IN CHINA

The Nanking government, headed by President Chiang Kai-shek, may perhaps be said to have made some progress during the year toward unifying China. While Manchukuo was not recovered, and indeed Jehol was lost to Chinese control, General Feng Yu-hsiang again entered into obedience, Marshal Chang Hsiao-liang gave up Peiping and departed, and North China came under Nanking, subject perhaps to an easement over part of it in favor of the Japanese. Yet Canton remained apart, Mohammedans ousted the Chinese officials in Sinkiang, Thibetans revolted, Szechwan remained in civil war, Communists in Kiangsi could be defeated but not conquered, and in November Fukien, with the famous ''Nineteenth Route Army,'' raised the standard of revolt. This province has at times been looked upon by Japan as a ''sphere of influence.'' The insurgents appeared to oppose Japan, and that country to encourage Chiang Kai-shek to leave his war against the Communists and exert all his might in Fukien. This campaign was in progress at the end of 1933.

China was again troubled by floods and famine. Military operations absorbed a large portion of the public income. Finance Minister T. V. Soong resigned in October, with an unfavorable result for Chinese credit.

At China's request the Council of the League of Nations appointed on July 3 a Committee of Nine, with authority to invite American coöperation for the purpose of furthering the League's program for Chinese reconstruction. Later in the year Ludwig Rajchmann was sent to China ''to coördinate the League's activities.'' It did not yet appear whether the plan to aid China would have any more success than that to check Japan.

THE UNITED STATES AND THE FAR EAST

Japan. — In general President Roosevelt has continued the Far East policy of President Hoover. He said on Jan. 17 that he was ''wholly willing to make it clear that his American foreign policies must uphold the sanctity of international treaties. This is the cornerstone upon which all relations between nations must rest.'' After the League's action on Feb. 21, both Secretary Stimson and Cordell Hull declared general accord with its plan, as indeed they well might, since Stimson largely initiated it. Hugh Wilson sat with the Committee of Twenty-one.

In May, Count Ishii, famous for his influence over Secretary Lansing, visited Washington on his way to the London Economic Conference. It appears that President Roosevelt admitted that Japan has special interests in Manchuria, but that he asked pertinently: ''Is it not a weakness on her part to allow her action to be regarded as violating treaties?''

At the same time at Geneva, Japan indicated her intention of demanding in 1935 naval parity with the United States and England, and expressed her desire that racial equality be agreed to.

In spite of the non-recognition of Manchukuo, relations of the United States with Japan continued to improve, particularly after Hirota became foreign minister of Japan in September. In the background lay extensive economic exchanges, since the United States sold Japan 31.9 per cent of all her imports, and took 27.3 per cent of her exports. In particular there was an exchange of Japanese raw silk against American raw cotton to the value on each side of about $100,000,000. The United

States is decidedly Japan's best customer.

China. — In June the American Government agreed to lend to China, through the R.F.C., $50,000,000, to be used in purchasing American cotton and wheat, in the ratio of four to one. Repayment was promised in the course of three years, with interest at three per cent. Rumors were heard later that part of this cotton was exchanged by China with Japan for munitions to be used against the Communists.

U. S. Recognition of Russia.—The recognition of Soviet Russia by the United States on Nov. 17 is reported to have modified the Far Eastern international situation notably, as for instance, by making Japan less ready to fight Russia, by strengthening anti-Japanese and Communist groups in China, by weakening the position in China of the Nanking government, and by postponing that government's disposition to yield Manchukuo legally to Japan in return for the abolition of extra-territoriality and other advantages. The Japanese government could not be pleased by this recognition while Manchukuo remained unnoticed. On the other hand the decision of the American Government to redistribute its main fleet, which has been in the Pacific Ocean for about two years, was welcomed by Japan. Balancing this release of tension, however, is the plan of building up the American navy rapidly toward its maximum treaty strength. The Roosevelt administration on the whole gave no particular attention during the year to the active and perhaps dangerous Far Eastern situation.

TURKEY

The Turkish government continued during 1933 its leadership in a movement to secure permanent peace and mutually advantageous commercial relations in the entire Balkan peninsula, which during the generations of subjection to the Ottoman Empire, while being less happy politically, had possessed internal peace and freedom of trade. Treaties and agreements were made or renewed with Greece, Yugoslavia, Rumania, Hungary, and Bulgaria In pursuit of a plan of financial and industrial improvement, a group of advisers was summoned from the United States, as being a country without ulterior objects in Turkey, to make a general survey of economic resources and agricultural possibilities, and to recommend lines of development. A new tariff was announced May 31, with heavy duties on manufactured goods, whose application was deferred three months. Arrangements were made to admit American goods to a value equivalent to that of Turkish goods exported to America.

EGYPT

This ancient land continued in a condition of political strain but relative economic prosperity. King Fuad was considered to stand forth as the leading personal force in Egypt. In August Sir Percy Loraine, High Commissioner, was succeeded by Sir Miles Lampson. The government and the banks continued their efforts to be permitted to pay obligations in Europe in Egyptian currency and not in gold. Further efforts were made to promote public works and help agriculture. In the middle of the year Mohammedan opinion broke out fiercely against Christian missions because of reports of efforts toward conversions under coercion. At first complete extirpation of missionary work was demanded, but this was later modified into asking for the abolition of special advantages to missionaries, and government aid for Moslem orphanages and other charitable institutions.

SYRIA

M. Henri Ponsot, after serving six years as French High Commissioner, was in July transferred to Morocco, and replaced by M. D. de Martel, ambassador to Japan. De Martel reached Syria in October, and promptly addressed himself to the problem of a treaty between France and Syria, toward which Ponsot had been laboring. A text was signed Nov. 16 by the High Commissioner and Hakki Bey el Azem, President of the Syrian Council of Ministers, but the Parliament showed itself hostile to the treaty, and this was withdrawn and Parliament suspended on Nov. 24. French opinion held the treaty to be definitive even though not ratified by the Parliament. By this new plan Syria was to cease to be under mandate, to be related to France for 25 years by a treaty of friendship and defensive alliance, and to be recommended for admission to the League of Nations after four years. The treaty of Iraq with Britain was paralleled in many respects. Syrian nationalists alleged that the treaty would place Syria under a French protectorate, and criticized the failure to include all the territories of the Syrian mandate; only the Syrian State would come under the Treaty; Jebel-Druze and Latakia would be discussed at the time of admission to the League of Nations; and the Lebanon would be held entirely separate.

PALESTINE

Racial and political disturbances continued through the year, with economic progress and indeed a measure of prosperity. Arab feeling was more acute against the English than against the Jews. Non-coöperation was contemplated, but only partly carried out, through non-payment of taxes and boycott of British goods. A new grievance arose in the middle of the year because Hitler's persecution of Jews in Germany led the Jewish leaders to ask for the entrance of 30,000 Jewish immigrants into Palestine. While the government allowed only 5,500 permits, agitation developed in October into strikes and bloodshed. Quiet was restored by Nov. 2, the anniversary of the Balfour Declaration. A few days later a committee of Arab Mayors called on Sir Arthur Wauchope, High Commissioner, and presented evidence that a number of Jewish immigrants were entering illegally, by misrepresenting their wealth and by coming as visitors and remaining. The High Commissioner immediately issued orders to enforce the laws stringently, which led to vigorous denials and protests from the Jews.

Reports of Sir John French showed that there exist in Palestine practically no available lands for new settlement. If landless Arabs or further Jewish immigrants are to be settled, it can only be by displacing persons already settled. Inquiries revealed that only about 5 per cent of the Jews in Palestine are engaged in agriculture, while 85 per cent are in trade, industry, and transport. Jews have brought into Palestine since 1921 about $120,000,000, very largely in goods, as is indicated by the fact that imports have had values equal to about eight times the exports.

The completion of the harbor works at Haifa was celebrated at the end of October. Regular passenger motor service was established from Haifa by Amman and Rutbah Wells to Baghdad. The railway survey over a similar route was completed. Many workers were constructing the pipe-lines from the Mosul region. It was expected that in 1934 petroleum would begin to flow in these lines to Haifa and Tripoli at the rate of 4,000,000 tons per annum.

After much discussion and intrigue, a law was promulgated in Transjordan forbidding the acquisition or the leasing for more than three years of any land in the country to persons other than citizens.

ARABIA

Troubles continued through the year in regard to the region south of Mecca known as Asir. For several years King Ibn Saud has controlled the greater part of this area, with occasional revolts from local leaders. In 1933 the Imam Yahya of the Yemen began to encroach upon Asir from the south. An animated correspondence ensued between the two governments, and the outbreak of war was rumored from time to time.

Three important economic projects were approved in the middle of the year: a concession to an Indian Moslem group to build a railway from Jeddah to Mecca, the establishment of a State Bank at Jeddah, and a concession to the Standard Oil Company to exploit deposits in the Hejaz and Nejd. The railway company was to begin with a capital of 5,000,000 rupees. Work was to start in October, 1933, and the railway must be completed in two years or a little more. The concession lasts 50 years. The capital of the State Bank will be 1,000,000 pounds sterling, one-half of which will be provided by the ex-Khedive Abbas Hilmi. The Standard Oil Company will sink wells near the coasts of both the Red Sea and the Persian Gulf.

The British government planned to separate Aden from India, making it a crown colony. Boundaries between Aden and the Yemen, and spheres of influence in Southeast Arabia, were more or less unsettled.

IRAQ

The "land between the Rivers" was in 1933 disgraced by its treatment of the Assyrian Christians, and perhaps in consequence, suffered the loss of its king. Its people were fairly prosperous and received money for its petroleum before any oil had flowed through the new pipelines. The Assyrians, who number only about 30,000, or one per cent of the population, were fearful of their fate among Kurds and Arabs from the day of Iraquian independence. They asked autonomous rights from the League of Nations. Their chief was detained in Baghdad from May till August, then deported to Cyprus. Late in July some hundreds of armed Assyrians crossed the frontier into Syria. At first disarmed, about 500 were allowed to take their rifles again, on the understanding that they would return to Iraq and deliver up the weapons. However it may have happened, they fought Iraqi troops, and were defeated. The victors, with the help of irregular Kurdish troops, are said to have killed many unarmed Assyrians, including women and children. The incident aroused much feeling in England, whose statesmen had assured the League that Iraq was fully capable of self-government.

King Feisal had been invited by King George to come to London. Leaving Baghdad June 5, he was welcomed royally on June 20 by King George and entertained in Buckingham Palace. After discussing outstanding problems, such as the cession by the British of the port works at Basra and the Iraqi railways and the reduction of Iraq's debt to Britain, Feisal went to Switzerland for a "cure." His rest was rudely interrupted by the Assyrian trouble. He flew to Baghdad at the beginning of August and aided in quieting the situation. At the end of the month he flew back to Switzerland to complete his vacation, but died there of heart failure on Sept. 8. His son Ghazi took oath as King on Sept. 10. The Iraqi government complained to the League of Nations that the French had launched an armed expedition from Syrian into Iraqi territory. A committee of three was chosen to investigate what had happened. In September another committee of six was asked to study the problem of removing the Assyrians from Iraq.

PERSIA

Persia came out almost completely triumphant from the controversy with the Anglo-Persian Oil Company. An argument was held Jan. 26 at Geneva before the Council of the League of Nations. On Feb. 2 a settlement was announced, according to which the Company would send representatives to Teheran to negotiate a new lease. The Englishmen arrived April 3, and the new concession was announced April 30. The area open to exploitation was reduced greatly; a royalty of 4 s. per ton was arranged, besides a share of the profits; a fixed tax of £225,000 a year is to be paid for fifteen years, and £300,000 for the remaining 45 years of the lease; and the foreign employees of the company are to be replaced gradually by Persians.

A trade controversy with Russia continued through much of the year. In February the Chamber of Commerce of Teheran advised Persian merchants to cease trading with Russia, which advice was taken to a noticeable extent. In August another meeting advised raising the boycott. Mr. Karakhan, Russian vice-commissar for foreign affairs, visited Teheran at the end of September, and was received with great honor. He promised to work toward a commercial agreement satisfactory to Persia, and to adjust other difficulties. Persia may be said to have won bouts with both of the great States which twenty years ago seemed about to rend her existence asunder.

AFGHANISTAN

Nadir Shah, King of Afghanistan for four years, was assassinated Nov. 8, and was succeeded by his son, Mohammed Zahir Shah. King Nadir Shah had put down the usurper who drove out King Amanullah and had led the country along a path of gentler and more welcome progress. He proclaimed a Constitution in 1932, abolished slavery, and advanced elementary and higher education. A State Bank had been opened in August with a capital of about $5,000,000. The new king reappointed his father's last cabinet, under the presidency of his uncle Mohammed Hashim Khan.

THE UNITED STATES AND THE WAR DEBTS

By James Thayer Gerould

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NOMINAL NEGOTIATIONS

No substantial progress was made during 1933 toward a final disposition of the war debts. While it is generally recognized that the loans made by the United States to various European powers during and immediately after the war and included in the so-called Settlements of 1925-26, will never, in any large part, be paid, and although the corresponding inter-Allied obligations were cancelled, along with German reparations, at Lausanne in 1932, Congress, undoubtedly reflecting popular opinion, is still unwilling to accept the realities of the situation. The Administration at Washington has, consequently, been unable to do more than conduct a series of futile negotiations in regard to the debts, to note receipt of "token" payments from certain nations, which amounted to no more than an admission of their continued legal validity, and to acquiesce in the virtual repudiation of the debts by certain other powers.

ROOSEVELT-MacDONALD-HERIOT CONVERSATIONS

The deadlock of opinion as to the method of dealing with the debts, which developed between President Hoover and President-elect Roosevelt in December, 1932, was broken after a conference at the White House on Jan. 20, and the subsequent announcement, by Mr. Roosevelt, that he would be glad, early in March, to discuss, with accredited representatives of the powers, the economic problems in which they were mutually interested. Such conversations were undertaken during the visits of Prime Minister MacDonald and M. Heriot in April, but the problems involved in the unprecedented financial situation, with which the new Administration was obliged to deal, made it necessary to defer any attempt to reach any complete solution.

TOKEN PAYMENTS AND DEFAULTS

On June 15, the date on which the annuities became due, Great Britain, which owed $75,950,000, made a payment of $10,000,000 in silver in token of recognition of the legality of the debt. By paying in silver, which they purchased in India, their Treasury saved $2,800,000, so that the actual charge of the payment on their public funds was only $7,200,000. Italy, similarly, paid $1,000,000 in silver against an obligation of $13,545,000; Czechoslovakia, $180,000 instead of $1,500,000; Rumania $29,110, instead of $1,000,000 Finland met her payment of $148,592 in full. The other debtors, led by France, defaulted, or, as they put it, "deferred," their payments completely. The total of the payments made was between 7 and 8 per cent of the amount due. Facing this situation, there was little that the Administration could do, save to keep the record clear. Somewhat sharp notes were dispatched to France and to the other nations technically in default. To the nations which had made token payments, the notes expressed disappointment, and the opinion that the payments were unsubstantial.

Previous to Dec. 15, when the next series of annuities became due, the Administration reminded the debtor nations of their obligation, and expressed the hope that the payments made would be more considerable. That these notes produced no satisfactory result is evident from the fact that the total of the payments made on Dec. 15 was only $8,898,123 as against obligations of $152,952,837. Great Britain decreased her token payments to $7,500,000, Italy paid as before, $1,000,000, and the remainder came in small amounts from the nations which had paid in June. The nations technically in default were the same as those earlier in the year. The French Government, in a note dated Dec. 15, maintained the position it had consistently held from the beginning, that its agreement to pay was conditioned on the receipt of compensating sums from Germany, and that, since the reparation payments were, in effect, cancelled at Lausanne, its own obligation was thereby altered. While there has been no official announcement in regard to recent negotiations with Great Britain, it is understood that she is seeking a settlement at about 25 per cent of the face value of the debt, and that our representatives are endeavoring to secure 75 per cent.

INTERNATIONAL CONFERENCES

By William T. Stone

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GENERAL

During the decade immediately following the World War the international conference as a method of solving economic and political problems and adjusting disputes between nations was used perhaps more widely than in any previous period in history. Many factors contributed to the growing importance of international gatherings. The economic interdependence of modern industrial states on the one hand, and the search for security and preservation of peace on the other, gave rise to a new need for international machinery. This need was supplied in part by such agencies as the League of Nations and the International Labor Office and by special conferences of sovereign states. Faced with the multitude of problems left by the War, statesmen resorted to the conference method as a useful means of establishing direct personal contacts and cöordinating international action.

With the beginning of the world depression in 1929, international action was beset with a host of new difficulties. Many countries adopted drastic measures to safeguard their domestic economy and resorted to policies based on economic nationalism and self-sufficiency. Trade restrictions and tariff barriers hampered the free flow of commerce and raised new obstacles to international agreement. Political problems such as the Far Eastern conflict, the reduction and limitation of armaments, and the twin issues of equality and security in Europe confronted the League of

Nations with the most critical decisions in its brief history. In the absence of any immediate solution it was not unnatural that the conference method should be subject to open criticism in many countries.

During 1933 this tendency to criticize the conference method was evident in the United States no less than in other countries. The meager results of the International Monetary and Economic Conference at London and the obstacles besetting the Disarmament Conference at Geneva led some critics to advocate that the method itself should be abandoned in favor of direct diplomatic negotiations, or even complete isolation.

ROOSEVELT GOVERNMENT POLICY AND PARTICIPATION

London Economic Conference. — The new administration in Washington, while alive to the difficulties of concerted international action, did not adopt a policy of complete isolation. Following the inauguration of President Roosevelt on March 4, the United States embarked on a far-reaching domestic program which conflicted at many points with established international policies. Despite the apparent conflict between its foreign and domestic policies, the United States participated in a number of important international gatherings. In April and May statesmen from a score of foreign countries visited Washington to confer with President Roosevelt on the program for the International Economic and Monetary Conference at London. American experts attended the four meetings of the Preparatory Committee for the Economic Conference. A full American delegation headed by the Secretary of State, Cordell Hull, participated in the Conference which met in London from June 12 to July 27. Other members of the delegation included James M. Cox of Ohio, Senator Key Pittman of Nevada, Representative Sam D. McReynolds of Tennessee, Senator James Couzens of Michigan, and Ralph W. Morrison of Texas.

Wheat Agreement.—Although the results of the London Economic Conference were disappointing to those who had looked for an accord on pressing monetary and economic problems, the United States continued to support international action on a more limited scale. The United States was represented by former Ambassador Henry Morgenthau at meetings of the wheat exporting countries in Geneva and London. These discussions resulted, after four months of negotiation, in an agreement signed at London on Aug. 25 by 21 of the principal wheat producing and consuming countries. The agreement limited production and export of wheat and illustrated the possibility of planning on an international scale.

Pan-American Conference. — The United States took an active part in the Seventh Pan-American Conference which met in Montevideo, Uruguay from December 3 to December 26. The Secretary of State, Cordell Hull, headed the United States delegation and supported a broad program for economic coöperation and preservation of peace in the American hemisphere.

Coöperation With the League of Nations.—Following its policy of recent years, the United States coöperated with the League of Nations in many of its activities. Norman H. Davis, President Roosevelt's Ambassador-At-Large, continued as head of the American delegation to the General Disarmament Conference which met at Geneva from Feb. 2 to June 29, and at meetings of the Conference Bureau and General Commission in October and November.

The United States also appointed representatives to coöperate with Committees set up by the League of Nations to follow the situation in the Far East and the dispute in South America between Colombia and Peru. Hugh R. Wilson, American Minister to Switzerland, represented the United States on both committees, but without the right to vote. Other League activities in which the United States participated included the work of the Advisory Committee on the Traffic in Opium and other dangerous drugs, which held meetings in Geneva in May and November, and the International Liberian Commission, which dealt with a plan for administrative and financial reforms for the government of Liberia.

CONFERENCES AND CONGRESSES HAVING U. S. REPRESENTATION

First Assembly of the Pan-American Institute of Geography and History, Rio de Janeiro, December 26, 1932-January 1, 1933.

Second Meeting of the Experts' Preparatory Committee for the International Monetary and Economic Conference, Geneva, January 9-19, 1933.

Third Meeting of the Organizing Committee for the International Monetary and Economic Conference, Geneva, January 25, 1933.

International Liberian Commission, Fifth Session, Geneva, January 21, 1933.

General Disarmament Conference, Second Stage, Geneva, February 2-June 29, 1933.

Advisory Committee Set Up by the Assembly of the League of Nations to Follow the Situation in the Far East, Geneva, March 15, 1933.

Advisory Committee Set Up by the Council of the League of Nations to Follow the Situation in the Dispute between Colombia and Peru, Geneva, March 21, 1933.

Ninth Annual Session of the Advisory Commission for the Protection and Welfare of Children and Young People, Geneva, March 31-April 5, 1933.

Fourteenth International Congress of Opthalmology, Madrid, April 16-22, 1933.

International Conference on Fruit as a Food, Paris, April 18-21, 1933.

Fourth Meeting of the Organizing Committee for the International Monetary and Economic Conference, London, April 29, 1933.

Meeting of Experts From the Four Principal Non-European Wheat Exporting Countries, Geneva, May 10-17, 1933; London, May 31, 1933.

Fifth Meeting of the Organizing Committee for the International Monetary and Economic Conference, London, May 12, 1933.

Sixteenth Session of the Advisory Committee of the League of Nations on the Traffic in Opium and Other Dangerous Drugs, Geneva, May 15-31, 1933.

Third International Conference on Private Aerial Law, Rome, May 15-29, 1933.

International Liberian Commission, Sixth Session, Geneva, May 29, 1933.

Seventh International Congress of Military Medicine and Pharmacy, Madrid, May 29-June 4, 1933.

Second International Conference on Sanitary Aviation, Madrid, May 29-June 4, 1933.

Fifth Pacific Science Congress, Victoria and Vancouver, June 1-14, 1933.

Seventeenth Session of the International Labor Conference, Geneva, June 8-30, 1933.

Technical Placing Conference, Geneva, June 9-10, 1933.

International Monetary and Economic Conference, London, June 12, 1933.

Forty-Fourth Congress of the Royal Sanitary Institute, Blackpool, June 17-24, 1933.

Fifth International Congress of Administrative Sciences, Vienna, June 19-24, 1933.

Thirteenth Session of the Medical Days of Brussels, Brussels, June 24-28, 1933.

Special Session of the World Power Conference, Copenhagen, June 26-27, 1933; Stockholm, June 28-July 4, 1933; Oslo, July 8-10, 1933.

International Liberian Commission, Seventh Session, London, June 27, 1933.

International Congress for the Protection of Childhood, Paris, France, July 4-9, 1933.

Sixth English Speaking Conference on Maternity and Child Welfare, London, England, July 5-7, 1933.

World Petroleum Congress, London, England, July 10-25, 1933.

North and Central American Regional Radio Conference, Mexico City, D.F., July 10-August 9, 1933.

Special Committee for the Council of the League of Nations on Technical Coöperation with China, Paris, France, July 18, 1933.

Thirteenth International Congress on the History of Art, Stockholm, Sweden, September 4-7, 1933.

Fifth International Poultry Congress, Rome, Italy, September 7-15, 1933.

Eighth General Conference on Weights and Measures, Paris, October 3-19, 1933.

Conference for Facilitating the International Circulation of Films of an Educational Character, Geneva, October 5-11, 1933.

International Liberian Commission, Eighth Session, Geneva, October 9-13, 1933.

Fifth International Conference for the Unification of Penal Law, Madrid, October 14-20, 1933.

General Disarmament Conference, Third Stage, Geneva, October 16.

International Public Health Conference, Paris, October 23-25, 1933.

Centennial of the Faculty of Medicine of the National Independent University of Mexico, Mexico City, October 23-25, 1933.

Seventeenth Session of the Advisory Committee of the League o Nations on the Traffic in Opium and Other Dangerous Drugs, Geneva, October 30-November 9 1933.

International Congress for the Scientific and Social War Against Cancer, Madrid, October 25-30 1933.

International Conference for the Protection of the Fauna and Flora of Africa, London, October 31-November 8, 1933.

International Congress of Governmental Press Bureaus, Madrid, November 6-11, 1933.

Seventh International Conference of American States, Montevideo, December 3-26, 1933.

Special Temporary Committee for Assistance to Indigent Foreigners, Geneva, December 4-9, 1933.

Governing Body for German Refugees, Lausanne, December 5-8, 1933.

THE PEACE MOVEMENT

BY FLORENCE BREWER BOECKEL

ASSOCIATE SECRETARY, NATIONAL COUNCIL FOR PREVENTION OF WAR

THE PEACE MOVEMENT AND DISARMAMENT

During 1933, peace activities both official and unofficial were centered in the World Disarmament Conference at Geneva. The post-war peace movement began with the Washington Conference for the Limitation of Armaments as a direct attack on the war system. It began, in other words, as a movement against war. During the decade following that Conference there was a change in the direction of unofficial activities for peace as well as official government efforts. Adherence to the World Court, extension of the number and scope of arbitration treaties, increased international coöperation and consultation, international codes of law, pacts of non-aggression, the Briand-Kellogg Peace Pact, these were the objectives of the peace movement, rather than a curtailment of the old war system. The result was that at the end of ten years of organized peace effort, the people of the world found themselves caught in the paradox of getting nearer and nearer peace without getting any further from war. The necessary machinery for the peaceful conduct of international affairs had been rapidly developed but preparations for war had been simultaneously accelerated, and weapons multiplied both in number and power of destruction.

PEACE COMMITTEES AT GENEVA

The final convening of the World Disarmament Conference in 1932 was due in large measure to a growing public recognition of the futility of attempting to establish peace by this one-sided policy. For several months before the opening of the Conference, activities of peace organizations were concentrated on the problem of disarmament, and there was an effort to ite peace forces not only nationally ut internationally. With the opening the Conference, international peace mmittees, representing organized oups totaling millions of members, ere set up in Geneva and have re- ained throughout the months the onference has been in session, sup- lying information and guidance to eir home organizations and at criti- al moments exercising an acknow- dged influence on the Conference it- lf. They have included the Disarma- ent Committees of the International ederation of League of Nations So- eties, of the Women's International rganizations and of the Christian In- rnational Organizations, the British onsultative Group on Disarmament nd the American Council on Disarma- ent. In addition to these, the Inter- arliamentary Union, International onference of Disabled Soldiers and x-service Men, and International tudent Service, as representative of ight student international organiza- ions, have taken part in activities onnected with the Conference. For urposes of as full coöperation as pos- ible officers of these organizations the Interparliamentary Union being epresented by an observer) organized n International Consultative Group.

SIX-POINT DISARMAMENT PROGRAM

Preceding the reconvening of the Conference in October, 1933, the In- ernational Consultative Group agreed pon a six-point program as a mini- mum requirement for an effective dis- rmament treaty which clearly indi- ated the advance in public opinion ince the opening of the Conference. Through its constituent organizations, he Consultative Group arranged imultaneous disarmament meetings hroughout the world, culminating in n international mass meeting in eneva on Oct. 15. At this meeting, disarmament resolutions were present- d from thirty countries. This ex- ression of worldwide public opinion, oming as it did at the time of the risis caused by the withdrawal of Germany, was officially said to have ad a decisive influence in the final determination of the delegates that the Conference should continue. The six points of the program adopted by the Consultative Group were as follows: 1. Substantial reduction of existing armaments; 2. No re-armament; 3. Abolition of aggressive weapons within a specified period and with the immediate elimination of all bombing from the air, of the air weapon in general and of poison gas; 4. Limitation of expenditure to prevent rivalries in armaments; 5. Effective supervision of existing armaments and of arms manufacture and trade; 6. A permanent organization to carry out the above provisions and to carry on the work begun by the Disarmament Conference.

NATIONAL PEACE CONFERENCE

This program reflects the policy of what is known as the right-wing of the peace movement. It is a policy based on the conviction that definite action by governments can best be attained by building up public support for a moderate program which the responsible administrative officers of governments are themselves more or less ready to adopt, granted support is assured. In the United States the peace organizations in general sympathy with such a policy are now united in the National Peace Conference which meets once a month for consultation and the development of coöperative projects.

ATTACK ON WAR SYSTEM

The continuation of the Conference through 1933 without decisive action turned the attention of all peace groups toward consideration of the obstacles which blocked action. One result has been a steadily increasing effort to uncover the part played by the private manufacture of munitions in the maintenance of the old war system. In the United States, efforts have been directed toward securing an investigation of this whole subject by the Senate, since, with no licensing system and no power to compel publication of stockholders and other details of the business, a Congressional investigation is the one means of obtaining the essential facts.

A second result has been a closer

union among the so-called left-wing groups in the American League Against War and Fascism, for the purpose of a more direct attack on the forces of imperialism and capitalism as the source of international rivalries which must inevitably lead to war.

A third development, particularly notable in England and France, has been an increase in the number of so-called war resisters who hold that individual resistance to war service is the only effective means of forcing governments to abandon war and to forego policies which imply reliance on war. In England, during the by-elections of the autumn of 1933, the British Labor Party made disarmament a primary issue in the campaign. In its annual conference, Oct. 2-6, 1933, the Labor Party adopted a resolution pledging itself "to take no part in war and to resist it with the whole force of the labor movement." It further called upon its Executive Committee to launch vigorous propaganda stressing among other things the growing acuteness of the war danger, the appalling nature of the modern methods of warfare, and imperialist and capitalist rivalries as direct causes of war.

In France, the government, according to a report in the conservative paper, *l'Echo de Paris,* on April 30, 1933, issued an order warning all local officials of the menace of the growing war resistance movement and urging them to do whatever they could to counteract it. This action was taken as a result of a resolution passed by the annual convention of French teachers, representing 74,000 men and women in support of conscientious objectors, and because of the large number of protests received by the government whenever a war resister is sentenced.

The most striking evidence of the extent of a similar opposition to war and war service in the United States was the poll of colleges taken in the spring of 1933. Seventy-two per cent of the 25,000 students who responded pledged themselves to take no part in war; over half of these declared they would take this stand regardless of the character of the war; 33 per cent stated they would fight only in ca the mainland of the United States w invaded.

ORGANIZING BY POLITICAL UNI

A further change in the methods peace organizations resulted from t obvious inconsistency between the forts at Geneva for world disarm ment and national policies increasi armaments. The need of bringing n tional policies into closer agreeme with avowed international objectiv has led to the further organization peace forces by political units whi was begun in the election campaig of 1932. The disarmament campaig of the autumn of 1933 was organiz on a Congressional District bas Meetings were held in 291 Congres sional districts out of a possible 38 five states at the time electing the representatives at large. In the mont preceding the opening of Congress local peace efforts were directed t ward interviews with senators and rep resentatives on the subject of recen increases in the navy and naval ex penditures. In the offices of nationa organizations, information has bee compiled as to the position of mem bers of Congress on peace measures and such information has bee mapped to contrast the votes of mem bers from munition manufacturing states with the rest of the country In at least one state, Pennsylvania, a detailed study has been made thi year of all votes in the state legisla ture in any way concerning military matters and reflecting the attitude of the members.

The political emphasis is strong in the peace activities of college students and young voters, among whom there has been a significant increase in interest and organization. In state universities, students are beginning to organize according to their home voting districts, which means not only that they may exert some influence during college years but that they will be able to continue it after graduation.

PEACE A MEANS NOT AN END

There is one other noteworthy change apparent in the point of view of the leaders of the American peace movement. A close two-way relationship between the movement for international peace and the national recovery program has been clearly recognized. The peace movement has attempted to check excessive nationalism as dangerous to peace and at the same time has put less emphasis on peace as an end in itself and more upon it as a condition necessary to national economic recovery and to the development and control of the earth's resources in the interest of human progress and human welfare. Recognition of peace as a means rather than an end offers a promising new approach to future growth and power for the peace movement.

THE UNITED STATES AND THE LEAGUE OF NATIONS

By The Associates

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EXTENSION OF AMERICAN COOPERATION

American relations with the League of Nations during 1933 were of three-fold interest and importance. From the universal viewpoint, world affairs were in greater upheaval than at any time since the World War, with the economic crisis continuing its devastation in all countries, disappointment in both economic and disarmament negotiations giving wide stimulus to nationalism, and serious political disputes in Europe, Latin America and the Far East casting long regional shadows. From the viewpoint of organized international coöperation, the League of Nations inevitably reflected these strains, suffering severely from the failure of Governments to agree on fundamental policies, being threatened with the loss from membership of Japan and Germany, and being sharply scrutinized in important quarters for possible revision. Finally, the United States itself was in the midst of a crisis which brought the Democratic Party to power for the first time since the Senate failed to accept the League Covenant in 1920.

In this troubled and shifting situation international activity was intense. It was not surprising that the President of the Assembly was able to ~~say~~ that American coöperation with the League had never been "so important, so close and so varied" as in 1933. There had been no change of principle or juridical relationship; there was, however, an accentuation and extension of normal and helpful coöperation. This was due, not so much to any conscious programme as to a combination of factors: in part the frequency and gravity of the various crises, in part the wide sweep of League influence and the convenience of its methods, and in part also to the freer psychology in Washington. President Roosevelt's dramatic appeal to the heads of all States in connection with the Disarmament and Economic Conferences; America's active and often decisive policies in these two Conferences; her full and helpful coöperation in the three grave political disputes submitted to the League in the Far East and Latin America; her interest in the League's efforts of reconstruction in China and Liberia; her attendance at the International Labor Conference and her welcoming of a League Committee to the United States for the first time since 1920; and, finally, her support of the League's coöperative efforts regarding dangerous drugs, health and social problems, refugees and cultural and legal matters, were amongst the principal points of interest during the year. In view, however, of "erroneous and misleading reports," Secretary of State Hull declared on Sept. 19 that the Government was "not contemplating any change whatever in its political relations with the League."

On Dec. 28, the birthday of Woodrow Wilson, President Roosevelt, in his first general statement on foreign affairs, paid a tribute to the place of the League in international life and gave an appreciation of America's relations to it. "The League," he said, "has provided a common meeting-place; it has provided the machinery which serves for international discussion; and in very many practical instances it has helped labor and health and commerce and education, and, last but not least, the actual settlement of many disputes, great and small, among nations great and small. Today the United States is coöperating more openly in the fuller utilization of the League than ever before. We are not members, and we do not contemplate membership. We are giving coöperation to the League in every matter which is not primarily political, and in every matter which obviously represents the views and good of the peoples of the world, as distinguished from the views and good of the political leaders of privileged classes or of imperialistic aims." It was on that general note that the year of America's closest coöperation with the League closed.

DISARMAMENT

Decided development took place during 1933 in American disarmament policies, particularly regarding consultation to preserve peace and international supervision of armaments. At the outset the original delegation headed by Ambassador Gibson maintained that consultation would be dependent on disarmament and that control was impracticable for the United States. In March President Roosevelt appointed Norman H. Davis Ambassador-at-large in charge of the delegation. In the debate on a proposal for transferring the major responsibility for world peace from the League to the signatories of the Pact of Paris, Mr. Davis announced that the Government was prepared to consult with other nations in the event of a threat to peace and would shortly define its views of the best way of codifying this principle into international law. On May 16 President Roosevelt's message to the heads of States outlined a detailed programme of disarmament comprising the elimination or reduction of all offensive weapons, "war planes, heavy mobile artillery, land battleships called tanks or poison gas," acceptance of a world pact of non-aggression and agreement not to send armed forces outside national frontiers. Mr. Davis shortly added the important principle that the United States was prepared in case of violation of treaties to refrain from any action tending to defeat collective efforts to restore peace. The Government would also coöperate in the international control of armaments and would propose their reduction to "a domestic police force," as provided in the treaties. Following further negotiations, the British delegation introduced a redraft of its original proposal for consultation which returned the responsibility for world peace to the League, non-member States having the right of consultation under the Pact of Paris or through the Secretary-General. Mr. Davis said the United States was prepared to express this formula in a unilateral declaration that, if it agreed that aggression had taken place, it would "refrain from any action and withhold protection from its citizens if engaged in activities which would tend to defeat the collective effort which the States in consultation have agreed upon." Long negotiations ensued during the summer and early fall on actual disarmament. On Oct. 14 the British delegation presented definite proposals approved by the American, French and Italian delegations. Germany considered these proposals as submitting her to a humiliating probationary period and startled the world by withdrawal from both the Conference and the League. In this crisis and in view of exaggerated reports, the American delegation issued a statement that it was in no wise politically aligned with any European Power, that it was not interested in the purely political aspects of the question, but was in Geneva solely for the general cause of disarmament. Mr. Davis shortly returned to the United States leaving Hugh R. Wilson, American Minister to Switzerland, in charge of the technical work to be carried out during the rest of the year, preparatory to the resumption of the Conference in 1934.

WORLD ECONOMICS

American action and policy almost completely dominated the League's efforts to meet the world economic crisis in 1933. Two American experts, Professors Edmund E. Day and John H. Williams, participated in the preparation of the Draft Annotated Agenda for the Economic Conference. Official representatives, Ambassador Sackett and Norman H. Davis, participated in the Organizing Committee of the Conference, the latter proposing a Tariff Truce which was accepted by nations possessing nearly 90 per cent of the world's commerce. Shortly after inauguration, President Roosevelt invited representatives of 53 nations "to participate in preliminary economic discussions in Washington preparatory to the World Economic Conference." On May 16, his message to the heads of States urged that the Conference must immediately "establish order in place of the present chaos by a stabilization of currencies, by freeing the flow of world trade and by international action to raise price levels." The Secretary of State and the Chairman of the Senate Foreign Affairs Committee went overseas for the first time to participate in a League Conference. A very confused situation developed, however, largely due to the fact that America was in a state of wide evolution. A first stabilization agreement elaborated by American representatives in London was rejected by President Roosevelt as "untimely"; after various other difficulties, a second agreement recommended by Prof. Raymond T. Moley, who had just arrived in London was equally rejected. The Conference almost adjourned at once, but, following a strong plea by Secretary Hull, continued for another three weeks, finally adjourning on July 27.

While the major objectives were not attained, two agreements of considerable American interest resulted. The first was an agreement on silver by the eight silver-holding or silver-producing nations, which President Roosevelt brought into operation on Dec. 22 by a proclamation committing the Government to purchase 24,000,000 oz. of silver annually. The second, initiated in experts' discussions in Geneva and continued in general conference in London, provided a detailed basis for coöperation between wheat-producing and importing States aiming to reduce production and improve prices. The Government also coöperated in other economic work of the League, but "with great reluctance" withdrew from the Convention for the Abolition of Import and Export Restrictions.

On the unofficial side, Prof. James Harvey Rogers of Yale University was appointed by the Council to the Economic Committee; Dana Durand served on the Committee of Statistical Experts, and the Rockefeller Foundation appropriated $125,000 to extend the League's analytical research work, particularly as regards the recurrence of economic prices. In the financial field, the first meeting of a League Committee in the United States since 1920 took place when a group of experts met in New York and Washington to elaborate a Draft Convention against Double Taxation. Royal Tyler continued as representative of the Financial Committee in Hungary; Norman H. Davis resigned from the Committee, however, because of other work. Little contact took place in connection with the League's activities in Communications and Transit, which at times had brought active American coöperation, but which were decreased in 1933 because of budgetary reasons. The American Government did not find it practicable to appoint an expert in connection with a further Conference on the Buoyage and Lighting of Coasts.

THE FAR EAST

Japan.—The Sino-Japanese dispute intensified during 1933 the coöperation established the year before between the United States and the League. In February the Assembly completed its report which, embodying the American policy of non-recognition of Manchukuo, constituted the most complete coöperative international opinion ever expressed in such a grave crisis. Non-member States, including the United States, were invited to "associate themselves with the views expressed in the Report and, if necessary, concert their action and their attitude with the Members of the League." Secretary of State Stimson immediately replied that "the purpose of the United States has coincided in general with that of the League of Nations; the findings of fact arrived at by the League and the understanding of the facts derived by the American Government from reports made to it by its own representatives are in substantial accord." The Government was "in general accord" with the Assembly's "measured statement of conclusions; The League and the United States are on common ground" as regards non-recognition; "in so far as appropriate under the Treaties to which it is a Party, the American Government expresses its general endorsement of the principles thus recommended."

The Advisory Committee set up to follow the situation invited the United States to coöperate in its work, attaching "great importance" to its acceptance. The new Administration replied that it was "prepared to coöperate in such a manner as may be found appropriate and feasible," but "in order to exercise independence of judgment would not name a representative to function as a member of the Committee. Believing that participation by a representative of this Government in the deliberations of the Committee would be helpful." Hugh R. Wilson was authorized to be present but without right to vote. Mr. Wilson participated on this basis in deliberations which led to a circular letter to all States embodying detailed recommendations on the carrying out of the policy of non-recognition. The United States concurred in these recommendations except "in a few particulars." One of these was stated by Stuart J. Fuller of the State Department before the Opium Advisory Committee to be an apparent effort to evade the 1912 Opium Convention through dealing with the opium monopoly in Manchuria, "the largest single venture ever undertaken in the illicit traffic in narcotics." Manwhile, Japan having announced its intention to withdraw from the League, the situation rested at this point at the end of the year.

China.—Quite apart from this dispute and more constructively hopeful was the beginning during 1933 of American contact with the League's work of technical assistance to China which had already taken to that country a score of widely different experts in finance, economics, communications, health, agriculture, civil service and education, in what may become a new method of coöperation between China and the West. This coöperation had so developed by 1933 that the Council decided to create a special Committee to deal with it. The United States was invited to coöperate "in any such way as it may deem appropriate," and sent Theodore Marriner, Councilor of the Paris Embassy, as observer to report any decisions for the guidance of the Government. An enlarged method of coöperation was evolved and a League technical agent appointed.

LATIN AMERICA

Closer Relationship. — The triangular relationship between the League, Latin America and the United States underwent in 1933 its furthermost evolution since the creation of the League. Hitherto there had been a considerable hesitancy on all three sides; during this year, however, two serious political conflicts and several changes of policy were to effect much closer relations.

Colombia and Peru.—Most striking of these developments was the Leticia dispute between Peru and Colombia which at the outset of the year threatened serious hostilities. The League, the United States and Brazil at once intervened; the United States officially notified the League of its action; the League in its turn transmitted to the United States its plan for settlement. Secretary of State Stimson, in a note to both States, called this plan "a most straightforward, helpful one which should make possible a peaceful solution." The United States accepted an invitation to participate in the League's Advisory Committee and, when the two Parties signed a formal agreement of settlement, the Secretary of State expressed to the League his great gratification. Thereafter, the Council, in agreement with the United States, named Col. Arthur Brown as member of the Commission for administering the territory pending the outcome of final negotiations.

Bolivia and Paraguay.—More obdurate in substance and more confused in jurisdiction was the century-old Bolivia-Paraguay dispute over the Grand Chaco. During the early stages, the Committee of Neutrals in Washington and the Council of the League in Geneva were both involved in mediating efforts, with consequent dangers of double jurisdiction. In June, however, following Paraguay's declaration of war, the Neutral Commission felt it could "best contribute to peace in this continent by withdrawing from the negotiations" and "allowing the League to work with universal support for peace." The Council shortly named a Committee of Enquiry which proceeded to the two capitals and negotiated a temporary armistice. The Commission was formally received by the Pan-American Congress at Montevideo, and in a resolution introduced by Secretary of State Hull, assured the moral support of America in its efforts for a permanent solution.

Argentina.—Two other events may be noted. In September the Argentine, long uncertain of its relations with the League and disturbed by the definition given the Monroe Doctrine in the Covenant, met both problems simultaneously by adhering to the League on the understanding that the Monroe Doctrine was "a unilateral political declaration, which in its time rendered signal service to the cause of American anticipation, and not a regional agreement" as described.

Pan-American Union.—Similarly, relations between the League and the Pan-American Union, which previously had been almost non-existent, changed considerably during 1933. The Secretary-General of the Montevideo Conference asked the League for a memorandum on the questions before the Conference, and the Uruguayan Government suggested the value of having a high official of the Secretariat present at Montevideo. The relationship between the two agencies was discussed at the Conference, particularly by Secretary Hull, and, though not finally decided, promises henceforth to be closer.

LIBERIA

Throughout 1933 the United States continued its active participation in the Council Committee seeking a coöperative plan for the reconstruction of Liberia. In January, following Liberia's moratorium on the loan of the Foreign Finance Corporation of New York, the Government sent Major General Blanton Winship, accompanied by Ellis O. Briggs of the State Department, "on special mission to Liberia." In meetings of the Council Committee in January, June and October, the views of both the American Government and the Firestone Company were put forward variously by Samuel Reber and General Winship. The Government withdrew its request that the Chief Adviser be an American, and the Finance Corporation liberalized somewhat its financial arrangements. A definite plan was finally approved, the American Government stating it considered that "the Plan is fair and practicable, that it contains ample safeguards for Liberia and will help to a solution of Liberia's problems.'' Liberia's decision was promised for the January session of the Council.

DANGEROUS DRUGS

The outstanding event in the past two decades of international anti-opium efforts was the entry into force in July of the League's 1931 Convention on Manufacture and Distribution of Narcotic Drugs. The United States had been the first Great Power to ratify this Convention; had largely aided in its general ratification, and fully participated in its stringent international control. The selection of the Permanent Central Opium Board included in it led during the year to America's first participation in the current work of the Council. ''As the largest legitimate consumer of opium and the coca leaf and as the largest market for narcotic drugs in the illicit traffic,'' the State Department said in accepting the invitation, ''the United States is vitally interested in and directly affected by the work of this Board.'' The American representative, however, would act 'solely in an electoral capacity and in no way as a participant in the regular proceedings of the Council.'' On this basis Mr. Wilson took his seat at the Council table on Oct. 14 when a unanimous agreement was at once reached. Amongst those reappointed was the original American member, Herbert L. May, who had previously also been named to the Supervisory Body to examine Government estimates of legitimate needs and to draw up the volume of ''estimated world requirements'' which was to be binding on practically every corner of the globe. Finally, Mr. Fuller of the State Department, participated in both regular sessions of the Opium Advisory Committee.

SOCIAL QUESTIONS

Traffic in Women. — During 1933, the United States resumed active representation on the Committees on Traffic in Women and on Child Welfare through the attendance of Miss Katharine Lenroot of the Department of Labor. Bascom Johnson, Chairman of the Far Eastern Commission of Enquiry, itself financed by a grant of $125,000 by the Bureau of Social Hygiene, acted as rapporteur for that Commission. The new Convention for the Suppression of the Traffic in Women of Full Age was formally communicated to the United States in October.

Indigent Foreigners. — Heretofore the United States had not coöperated as regards assistance to indigent foreigners which it felt was largely a matter for the State courts. In October, however, the Council issued a special invitation and the Government appointed as its representatives Prof. Joseph P. Chamberlain of Columbia University and George L. Warren, who participated in the preparation of a draft Convention and a series of recommendations.

Refugees.—A new question in 1933 was that of some 60,000 Jewish and other refugees from Germany, which the League entrusted to an autonomous agency consisting of a High Commissioner and a Governing Body. The United States appointed Professor Chamberlain as its representative on the Governing Body; the Council, on the recommendation of various important groups in New York, appointed James G. Macdonald as High Commissioner. The work was successfully launched at meetings in Lausanne in December.

HEALTH

American interest, both official and private, continued during 1933 in the League's health work. Surgeon General Hugh S. Cumming attended the annual meeting of the Health Committee, important elements of whose work were made possible by the long-term grant of $145,000 by the Rockefeller Foundation. The study of the influence on public health of the economic depression was aided by the attendance of Dr. George K. Strode of that Foundation at two Committee meetings and by the coöperation of the U. S. Public Health Service, in association with the Milbank Memorial Fund, in enquiries in the United States. Dr. L. W. Hackett, also of the Rockefeller Foundation, coöperated in the Anti-Malaria Committee; Dr. F. J. Boudreau, former Ohio State Health Commissioner, was named Acting Director of the Health Organization.

CULTURAL

America also took part in considerable of the League's work for cultural extension. The Government was represented by Curtis Everett, consul at Geneva, at a Conference which drafted a Convention to facilitate the international circulation of educational films, and by Robert T. Pell of the Paris Embassy at a Conference of Press Experts at Madrid which, though convened by the Spanish Government, was closely inter-related with League work. James Erwin Miller represented the United Press Association at that meeting, while Clarence K. Streit provided a document on false news around which discussion largely centred. Professor James T. Shotwell participated in the annual meeting on Intellectual Coöperation; Dr. Edwin F. Gay in the "interchange" amongst world scholars on the future of culture, and other Americans in special Committees on Education, Arts and Letters, and Libraries. In connection with international research, a group of American scholars took part in a Conference in London, while the Library donated to the League by John D. Rockefeller, Jr., was brought well on its way to completion.

WORLD LAW

Practically the only field of League interest where American progress did not take place in 1933 was in connection with the Permanent Court of International Justice. Despite the pleas of three Presidents and three Secretaries of State, the endorsement of practically all authorized agencies, and the pledges of both political parties, the question of American accession to the Court, which had been greatly facilitated by the Root Protocol, remained unacted on in the Senate. Meanwhile, however, nearly all the other countries had ratified this Protocol and the Court itself had continued to gain in authority. During the year it handed down a decision of American interest in connection with Greenland, while Frank B. Kellogg continued to serve as judge. In other League work for the codification of international law, however, there was continued coöperation. In reply to a circular letter as to the development of public opinion regarding the nationality of women, the Government transmitted full information, and later, in reply to a general enquiry looking to the codification of all nationality legislation, transmitted texts of all American nationality laws now in force.

WORLD LABOR

A fundamental change occurred in 1933 in the relationship of the United States to the International Labor Office when, for the first time since the Washington Conference in 1920, the Government sent a delegation to the annual meeting. Hitherto, despite the leading role played by Americans in the creation of the Office, the Government had taken almost no part in its work. The new Administration, with its new concepts of social and economic organization, early associated itself, however, with an international agency based on the tripartite representation of Government, employer and worker. In addition to the General Conference, Prentiss Gilbert was sent as observer to the Preparatory Conference on the Reduction of Hours of Work, and William H. Stead to that on Technical Placing. The Labor Office manifested its interest in the far-reaching changes in the United States by publishing the text of the principal laws and codes, and by authorising its Director, Harold Butler, to visit the United States in November.

II. INTERNATIONAL RELATIONS AFFECTING THE U. S.

A CENTURY OF PROGRESS INTERNATIONAL EXPOSITION

By Rufus C. Dawes

President, A Century of Progress International Exposition, Chicago

INTERNATIONAL SIGNIFICANCE

Man's custom of commemorating anniversaries of historical significance through the medium of expositions has provided an important means of interpreting human progress, of honoring those who have contributed to the advancements and of surveying some of the possibilities of the future. The hundredth anniversary of Chicago's incorporation as a municipality was an event that seemed worthy of a suitable observance. Within the span of a single century Chicago had risen to greatness among the cities of the world, its eminence in the arts and education, in commerce, industry and trade universally recognized. But much as Chicago's pride demanded a celebration of its centenary in 1933, it was recognized that the city's growth was due more to world-wide forces than to local ones. Chicago had advanced in power as had all other great cities because of discoveries in science and their application to industry by means of inventions.

The birth of Chicago in 1833 was coincident with the beginning of the most outstanding century of human advancement in the history of the world. This advancement was marked by man's increasing understanding of the laws of nature and his mastery of them. Discoveries of science gave man control of the forces of electricity and enabled him to harness steam for his uses. The limitations that had so narrowly bound man's transportation and communication at the beginning of the century were miraculously removed. Everywhere there was modification and change and improvement in the conditions under which people worked and lived, due to the coöperation of science and industry. Comforts were multiplied, isolation broken down, education extended, human life guarded, pain and suffering controlled. Chicago, therefore, planned the commemoration of its centennial not as a local observance, but as an international celebration of the growth of science in the past century and the application of the discoveries of science by industry to the benefit of humanity.

ORGANIZATION

A Century of Progress International Exposition was formally organized as an Illinois corporation not for pecuniary profit on Jan. 5, 1928. Its officers included: Rufus C. Dawes, president; Charles C. Peterson, vice-president; Daniel H. Burnham, vice-president and secretary; George Woodruff, treasurer; Lenox R. Lohr, vice-president and general manager.

FINANCING

Even though the world was in the midst of prosperous economic times when the plans for the Exposition were made, it was determined that the burden of financing it should not be laid on the shoulders of the taxpayers. A fundamental principle established was this: in so far as the Exposition was an expression of the pride of Chicago citizens, then they by voluntary contributions should prepare and set the stage for it; in so far as the Exposition served the interests of industry, then industry should pay its share. Thus the Exposition stood on its own feet and neither asked for nor secured any subsidy from the Federal, state or municipal governments.

The preliminary expenses were met by contributions of $1,000 each from a group of founder members and of $50 each from sustaining members. More than 100,000 citizens of Chicago united in support of the enterprise and subscribed $5 each as a membership fee in the World's Fair Legion. These $5 memberships were subsequently returned to them in the form of tickets of admission to the grounds.

Due to the efforts of Charles G. Dawes, a $10,000,000 issue of gold notes guaranteed by Chicago citizens of public spirit and wealth made the execution of the Exposition's plans possible. This issue of notes was augmented by the sale of exhibit space totaling several million dollars in the various buildings to leading industries. In a number of instances companies erected buildings of their own in which to present their exhibits.

The United States Government and the various states were invited to participate with exhibits, but they were not asked to make payments into the general fund for financing or support of the Exposition. The Federal Government appropriated $1,000,000 which was used for the erection of a special building housing its exhibits. Various states purchased exhibit spaces in the States Building adjoining the U. S. Government Building and appropriated funds for the preparation, installation and maintenance of those exhibits.

In carrying out its plans the Fair occupied a site stretching for three and one-half miles along the shores of Lake Michigan and including an island adjoining it—land all recovered from the bed of the lake. On this space, comprising 424 acres, as many buildings as could reasonably be accommodated were erected. The construction of buildings and the preparation and installation of exhibits and attractions represented an investment by A Century of Progress and others of not less than $37,500,000.

PURPOSE AND PLAN

The fulfillment of the Exposition's theme of explaining the nature of the fundamental scientific discoveries of the past century and describing how they have been applied to the practical uses of man meant that A Century of Progress was not merely to be an exhibit of the products of industry. It meant that this Exposition could become a means for helping the American people to understand themselves and of making clear to the coming generation the forces that have built this nation.

Great industries caught the challenging spirit of this purpose. In adhering to the philosophy of the Exposition, they produced exhibits different in character and interest from those of any Expositions of the past. Exhibits were developed to show the indebtedness of industry to scientific discoveries and the methods by which these discoveries have been used to promote the comfort and welfare of mankind. They were designed to focus attention on the services the various industries provide for humanity and the processes they used rather than exclusively on the products themselves. They did not compete for prizes or blue ribbons for the reason that the competitive idea of previous expositions was not in spirit with the philosophy of A Century of Progress.

THE HALL OF SCIENCE

The Hall of Science was the center of the exhibits scheme. Invaluable coöperation was given to the Exposition in the development of the science exhibits by Committees appointed by the National Research Council and more than 400 associated scientists from leading institutions of America and abroad. The Science Advisory Committee, headed by Dr. Frank B. Jewett, obtained the coöperation of universities, hospitals, scientific associations, institutions of learning and industrial enterprises both here and abroad in sponsoring important exhibits.

The main principles of Mathematics, Physics, Chemistry, Biology and Geology were explained with the aim of making science a living thing to the laymen. The progress of medical science and its contributions to human health and comfort was portrayed. The method sought was to dramatize each point so far as possible by moving exhibits showing processes and operations. Sound and light waves, x-rays, liquid air, chemical processes, anatomy geometric equations, disease prevention, physical phenomena, biological development and other phases of science were cleared of their obscure and technical details and made understandable to the lay visitor.

The story of science was completed with a presentation of Astronomy in the Adler Planetarium, where the firmament in all its glory was projected on the domed ceiling by means of the Zeiss machine. Man's increasing mastery over nature through the medium of scientific study was dramatically illustrated by the utilization of light from the star *Arcturus* as the signal for the turning on of the illumination on the opening night, May 27th, and on subsequent nights during the Fair's operation. The beam of light used by science for this purpose had traveled 240 trillion miles through space.

From the Hall of Science the industrial exhibits radiated. These were shown in the five pavilions of the General Exhibits Group, the Electrical Building, the Radio and Communications Building, the Hall of Social Science, the Foods and Agricultural Building, the Dairy Building, the Travel and Transport Building, Home Planning Hall, the General Motors Building, Sears, Roebuck Building, the Chrysler Building, the Firestone Building.

INDUSTRIAL DEMONSTRATION

Visitors were given a first-hand view of industries in operation. They saw new automobiles made on an assembly line, shirts fabricated, rubber tires manufactured complete, silk stockings woven by modern automatic machines, tooth paste produced and packed, a dry cleaning establishment in operation, diamonds cut, printing presses in operation, paper manufactured, steel welded and cut, cigars made, neon tubes blown, bent and charged.

They learned how electricity has banished darkness, provided power for driving industrial machines, running transportation systems and serving the household. A telephone system was shown in actual operation, telegrams were transmitted and printed, radio amplification explained, the principles of electrical refrigeration made clear, electricity in schools, farms, factories and hospitals and its possibilities of future development portrayed. Wireless power transmission, the electric eye, directed radio beams, new alloys, electrical furnaces, electrical kitchens and other results of laboratory research were shown by electrical manufacturers.

How transportation has helped make the United States a nation was told in a variety of exhibits and presentations. The development of transportation *via* railway, highway and air formed chapters in an epic of civilization's advancement in the past century. The newest means of transportation were displayed alongside of their crude pioneering prototypes.

The story of agriculture was an important adjunct to the exhibits of science and industry. Farm machinery in operation and displays showing its evolution illustrated the contribution of mechanized farming to agriculture's development. How farm products are made ready to move to the consumer was shown in direct-action exhibits. The packaging and distribution of many important food products and other operations in their preparation for consumption were demonstrated.

The petroleum industry showed the public how oil is recovered from the earth, transported, refined and made available for their use. The steel industry demonstrated how steel is made and showed to what an important extent modern civilization is dependent on the operation of this industry. Meat and meat products, chemicals, textiles, typewriters and business machines and scores of other products were displayed and their importance in man's past and future progress was made evident.

SOCIAL SCIENCE EXHIBITS

The social effects of the changes that have been brought about in living conditions through the ministrations of science and industry were portrayed in the Social Science exhibits. Steps which are being taken and which must be taken to adjust groups and individuals to the machine age were described. The development of social welfare, including recreation, the care of dependents, and public health and community service was traced. These exhibits were built around the changed conditions of the family during the last century. They emphasized the self-sustaining producing unit of former days in contrast with today's consuming unit, dependent almost entirely upon outside forces. This idea carried over in the school exhibits which demonstrated that much of the train-g which youth formerly received at me must now be given by the hools. Social problems, such as emi- ation, foreign relations and family anges—and various economic ques- ons including housing, production, nd similar subjects added to the pic- ure of today. All these factors come gether to illustrate the social conse- uences of the new applications of ience to life.

THE STORY OF MAN'S DEVELOPMENT

Coincident with the social science xhibits was the story of man himself, ld by the anthropological displays. an and his early culture in North merica was the central theme. In- ian habitations were reproduced on he Fair grounds, peopled by abor- gines. These included a section of Northwest Coast Village, woodland roups living in wigwams, tipi-dwell- rs of the great plains, and the dwell- ngs of the Navajos and Pueblos. A aya temple reproduced as it stood in ucatan ten centuries ago was an im- ortant feature of the exhibit.

Man's rise through religion was il- ustrated in exhibits in the Hall of eligion. Coöperative exhibits by var- ous denominations revealed the re- ults accomplished in religious educa- ion, social work, religious literature, ome and foreign missions, hospitals nd philanthropic institutions, evan- elism and social justice.

The contrast in living conditions rom a century ago to the present ay was shown in the Home and In- ustrial Arts exhibit, comprising leven modern homes near the repro- uction of old Fort Dearborn, Chi- ago's first settlement. Side by side vere the crude pioneering surround- ngs of a hundred years ago and the ltra modern home with all its con- eniences, comforts and labor-saving evices.

STATE EXHIBITS

Twenty states and two territorial possessions of the United States pre- sented exhibits of a diverting and in- formative character. The displays ranged all the way from scenic attrac- tions and natural resources to agri- culture, fruit growing, mining, manufacturing and handicraft. Among states represented by exhibits in the States Building, adjoining the U. S. Government Building were: Wisconsin, Illinois, New York, Iowa, Washington, Ohio, North Dakota, Georgia, California, Indiana, Minnesota, Texas, Missouri, South Dakota, Arkansas, West Virginia, Mississippi, Michigan, Colorado and Florida. Puerto Rico and Alaska were likewise represented by exhibits. As the host among the states, Illinois erected its own building in which a welcome was extended from far and near. Illinois also presented exhibits in the States Building and likewise in the Agricultural Building.

FEDERAL GOVERNMENT EXHIBITS

A glimpse of the service which the United States Government performs for its citizens was given by exhibits prepared by every Federal government department. How these agencies reach out and increase their efforts for the betterment of living conditions in this country and the greater comfort and security of its people was portrayed.

EXHIBITS OF FOREIGN GOVERNMENTS

Exhibits by foreign governments displayed the contributions of nations abroad to the progress of science, the arts and handicraft, resources, important products, industries and scenic attractions. These were shown in special pavilions, in exhibit buildings or in the outdoor transportation area adjacent to the Travel and Transport Building. Among nations represented were: Italy, Sweden, Czecho-Slovakia, Egypt, Great Britain, the Irish Free State, Mexico, Denmark, Norway, the Grand Duchy of Luxemburg, China, Japan, the Dominican Republic, Brazil, Costa Rica and Morocco. The Ukrainian pavilion and the German-American Building represented the efforts by Chicago groups of these nationalities to present comprehensive exhibits telling of the achievement of their native lands.

THE FINE ARTS

Paralleling the general displays of science and industry was an exhibit of the fine arts of a character that has never been surpassed in the history of world fairs. Traditionally such art exhibitions are an important feature of expositions and frequently provide a considerable source of revenue. But unless the collection can be placed in a permanent building and supervised by a trained organization assuring complete protection for the works of art during the exhibit, and their safe return at its close, it is virtually impossible to obtain loans of masterpieces from private owners or museums. Fortunately in Grant Park, close to the grounds of A Century of Progress, is the Chicago Art Institute, recognized internationally as a leading art museum. After careful consideration it was believed that the best possible arrangement would be to utilize the Art Institute as the official art exhibit of the Exposition. The Exposition gave its sponsorship to a special exhibit and the owners of priceless masterpieces coöperated generously in loaning their works of art. While A Century of Progress derived no monetary profit, the arrangement was mutually advantageous to the Exposition and the Art Institute. The loan collection represented the largest and finest ever gathered together under the auspices of an international exposition.

RECREATIONAL AND AMUSEMENT FEATURES

Impressive and inspirational as were the exhibits of science and industry, it was early realized that recreational and amusement features of an unusual caliber would be needed to provide the seasoning and contrast necessary for a completely rounded World's Fair. It would be impossible in the scope of this article adequately to describe the life, color and entertainment of the Midway and of other recreational aspects of this Exposition. Certain of these promise to be long remembered; the Sky Ride, the Enchanted Island, Wings of A Century, the World a Million Years Ago, the Belgian Village, the Streets of Paris.

SPECIAL PROGRAMS AND FUNCTIONS

Day by day from its opening the Exposition was the scene of functions and special programs. These included the reception of celebrated visitors including President Roosevelt, the go ernors of most of the states, cabin officers, diplomatic representatives foreign nations, the Italian Air A mada under command of General Ita Balbo. There were special days d voted to various states, to nation groups, communities, religious orga zations, associations and patriotic bo ies. There were athletic events, footba games, track and field events, ban concerts, operatic performances, fir works, lectures, parades, carnival shows and performances of many var eties.

ARCHITECTURE

From the viewpoint of thought stim ulation the architecture of the Exp sition was of considerable importanc The meditative glories of Greece an Rome, so much in evidence in Expos tions of the past, had no part in th scheme. Much has been written an said about the architectural forms o the exhibit buildings and their de partures from the conventions of th past. Out of all the discussion th fact remains that these structures wer built in the most practical manner t perform the function for which the were intended—the housing of exhib its. Economic conditions and th problems of the time to a large exten governed the design. The introduc tion of new materials and methods o construction were important factors The Architectural Commission, comprising leading architects of the United States, took into account the fact that a World's Fair is properly a testing ground for new ideas. They sought definitely to bring the buildings and the exhibits they were to house into a sensible relationship with each other.

The design of the buildings which resulted in planes and surfaces unbroken by ornamentation provided unusual opportunities for color experts and specialists in illumination to produce new effects. As a result the world was given a new conception of the possibilities of color and lighting in architecture. This was no tentative halfwit attempt, but daring ideas put into effect on a gigantic scale. Day light colors were taken from a palette of 25 different hues. Night-time ef ffects produced some scintillating pictures in all the colors of the rainbow. Every modern means of lighting was employed to make the night a time of beauty on the Fair grounds—gaseous tubes, search lights, concealed illumination sources, flood lights, beacons and projectors of every description.

ATTENDANCE

Long before the Exposition closed it had become evident that it had taken its place as a giant among World's Fairs. From the standpoint of attendance alone it was the most successful American exposition of all time. From May 27th to Nov. 12th, the closing day, the attendance was 22,320,456, as compared with 21,480,141 for the World's Columbian Exposition of 1893, the previous leader in point of attendance among American expositions.

THE INFLUENCE OF THE EXPOSITION

The Exposition was an important factor in encouraging the economic upturn. In a time of grave uncertainty it became an instrument for making the world realize that the powers and resources of mankind are unimpaired and that science has never stopped its forward march. Its influence on business was beneficial. It helped to release the life-giving currents of commerce, trade and industry. Its effects were felt by transportation, wholesale trade, retail stores, hotels, restaurants and many other branches of industry. Increased employment resulted from it. Travelers to the Exposition stimulated trade throughout the nation from the time they left their homes until they returned to them.

A Century of Progress Exposition has demonstrated that no matter how individual men may despair, humanity makes no compromises in the achievement of its advancement. As a whole and in detail, spiritually as well as materially, the Exposition had the effect of provoking thought on a widespread scale. It was a penetrating concept of a changed and changing world. It should make an impression on the minds of most who saw it, an impression that should be a determining force in shaping their future attitude toward life.

CHRONOLOGY OF INTERNATIONAL EVENTS AFFECTING THE UNITED STATES

(From *The New York Times*, December 31, 1933)

JANUARY

Jan. 2—The United States completes its evacuation of Nicaragua, which it had occupied with marines since 1926, and on Feb. 2 the "bandit" Augusto Sandino makes peace with President Sacasa.

In Chile President Alessandri dissolved the "Cosach," or Nitrate Corporation, on the ground that foreign interests, mainly Americans, are benefiting unfairly.

Jan. 9—Mr. Roosevelt and Secretary of State Stimson discuss foreign affairs at Hyde Park.

Jan. 20—As result of White House conference between President Hoover and President-elect Roosevelt, Secretary of State Stimson advises debtor nations that the latter will deal with them individually after March 4.

Jan. 23—Nov. 22—The Disarmament Conference which had adjourned July 21, 1932, reconvenes, dealing with academic problems until Germany becomes defiant.

Jan. 25—Secretary Stimson tries to intervene in the Braxilian-Colombian dispute over Leticia.

APRIL

April 1—In retaliation to censorious demonstrations held in New York, London and Paris, the new government in Germany begins a carefully planned anti-Semitic campaign of persecution and expulsion with attendant "Nazi" mob violence, although Secretary Hull had been "officially" informed that all overt acts had ended on March 26.

April 10—Eleven nations having accepted President Roosevelt's invitation to confer with him on world economics, he outlines the agenda: silver, wheat, copper, tariffs and currency.

April 22-30—Aside from former Premier Herriot of France and Prime Minister MacDonald of Great Britain, representatives of Italy, Germany, Canada, Mexico, Argentina and China discuss with President Roosevelt and Secretary Hull the lowering of trade barriers, re-establishment of an equitable currency, raising of commodity prices, and the ways and means of expanding foreign credit; the principal aim of the conference, however, is to sound the visitors on war debts and to formulate an agenda for the World Economic Conference at London.

MAY

May 3—Japan informs the United States that Manchukuo will observe the "open door" as incumbent on China by the Nine-Power treaty signed at Washington in 1922.

May 12—Eight powers pledged themselves not to create any further trade restrictions, either before or during the London Conference, in view of which President Roosevelt holds in abeyance those provisions of the Farm-inflation Bill calling for a reduction of acreage and the imposition of processing taxes; French Ambassador calls upon him to say that the Daladier government would try to have the Chamber vote the payment at once of the war debt instalment of Dec. 15, if the American President would agree to a war debt moratorium during the London Conference.

May 16—Peace, both political and economic, is the burden of an unexpected message sent by the President to fifty-four heads of State, with advice for the London Economic Conference and the Geneva Disarmament Conference and a warning to Hitler's Germany.

May 17—The Reichstag is hastily summoned by Hitler to hear him reply to President Roosevelt' message of the day before and his exposition of his own foreign policy; Germany demands equality; will rearm if other nations continue to arm, or will disarm if other nations disarm first, and unless the alternative is accepted Germany will withdraw from the League of Nations.

May 27—Chicago's Century of Progress Exposition is opened by Postmaster General Farley with a message from President Roosevelt.

JUNE

June 12—King George welcomes the 168 delegates from 66 nations; although the United States had barred any discussion of war debts, the chairman, Prime Minister MacDonald, at once says that the debts "must be taken up without delay by the nations concerned."

June 12-July 27—Already, June 2 Neville Chamberlain, Chancellor of the Exchequer, had told the House of Commons what his delegation intended to do at the coming London Economic Conference; plan production and distribution so as to raise world price levels, rather than the credit or currency jugglery; while protecting currencies from further fluctuations to restore the gold standard, even at a new parity; to abolish or lower trade barriers. Secretary Hull had also given the aspirations of the United States on the eve of his departure for the Conference, on June 7: with a reduction of trade barriers to restrictions on exchange, quota and license; an international agreement for the boosting of prices. The views of France have been expressed by Premier Daladier to the Deputies at the Palais Bourbon; to stabilize currencies at a proper level; to raise prices by the old method of preferential tariffs; an internationa agreement for a forty-hour work week.

une 17—President Roosevelt agrees in principle with a plan for stabilization moved by the Conference, but not to its hasty enactment.

une 27—The Monroe Doctrine is ignored when the Pan-American Union puts the Chaco dispute up to the League of Nations.

une 28—The five principal gold standard nations try to have England act in "haste" at the Economic Conference so as to isolate the United States.

JULY

uly 3—In a message to the American delegation at the London World Economic Conference President Roosevelt qualifies his dictum of May 7 to the effect that national currencies should have "a continuing purchasing power which does not vary greatly in terms of the commodities and need of modern civilization," and he added that he hopes that the dollar he visions would have "the same purchasing and debt-paying power as the dollar value we hope to attain in the near future."

uly 27—The Conference votes to preserve its organization and adjourns *sine die.*

AUGUST

Aug. 2—President Sacasa of Nicaragua, who has been very nervous since the withdrawal of 700 United States Marines on Jan. 2, declares martial law owing to the accidental blowing up of a munition plant at Managua.

Aug. 4—Although it has constantly been contended that the Soviet Government, of which Kalinin is President, is the supreme power in the U.S.S.R. and was so regarded by President Roosevelt on Oct. 20, Joseph Stalin, Secretary General of the Executive Committee of the Communist party, issues a general amnesty freeing more than 12,000 political prisoners.

Aug. 7—Forty persons are killed in Cuba while celebrating a false report that the United States had persuaded President Machado to resign.

Aug. 12—General Balbo, with 23 hydroplanes, returns to Rome from flight to Chicago exposition and back, begun June 30.

SEPTEMBER

Sept. 2 — Died: George Thomas Marye, American Ambassador at Petrograd, 1914-16.

Sept. 26—The United States declines the suggestion of England to postpone the building of four 6-inch gun, 10,000-ton cruisers during the existence of the Disarmament Conference.

OCTOBER

Oct. 13—After an address by President William Green, the American Federation of Labor, with a membership of over 4,000,000, votes a boycott on German-made products.

Oct. 14—Two days before the reopening of the Disarmament Conference and with both Norman H. Davis, the American representative, and Sir John Simon, British Foreign Secretary, armed with proposals which would have rationally met the original demands of Germany, the latter withdraws from the conference on the excuse of the "unwillingness of the highly armed States to carry out their contractual obligations to disarm." Adjournment is voted until after the German elections of Nov. 12.

Oct. 18—Died: Peter Augustus Jay, in U. S. diplomatic service 30 years, resigning as Ambassador to Argentina in 1927.

Oct. 20—The President announces that he has invited President Kalinin of the U. S. S. R. to send him a representative to discuss with him personally a method for resuming diplomatic and other relations between Moscow and Washington, broken off just sixteen years before.

President Kalinin dispatches Maxim Litvinoff to Washington.

NOVEMBER

Nov. 15—Recognition of Russia by the United States—the twenty-first nation—is received.

Nov. 16—After ten days' conversation with Maxim Litvinoff, the Soviet Commissar for Foreign Affairs, President Roosevelt announces that diplomatic relations, after a break of sixteen years, are to be resumed between Russia and the United States with the former promising to abstain from Communist propaganda here, to allow freedom of worship of American citizens in Russia, and waive damage alleged to have been done by an American Army in Siberia, while the outstanding monetary claims and counter-claims are to be adjusted by a mixed commission. William Christian Bullitt will be the first American Ambassador at Moscow and Alexander A. Troyanovsky, the first Sovie Ambassador at Washington. Th United States is the twenty-firs government to recognize the U. S S. R.; the twentieth was Spain, o July 27.

Nov. 20—The Amateur Athleti Union of the United State votes unanimously to boycott th 1936 Olympic Games if held i Berlin.

DECEMBER

Dec. 27—President Grau of Cuba wil default, but not repudiate, on $4 718,000 bonds, and declines to pa debts contracted by the late Ma chado administration.

Dec. 28—The press of the worl highly praises President Roose velt's speech in honor of the lat President Wilson; sees in it sym pathy for Latin America and warning to Hitler in Germany.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

Academy of Political Science in the City of New York, Fayer-Weather Hall, Columbia University, New York City.

American Arbitration Association, 521 Fifth Avenue, New York City.

American Peace Society, 734 Jackson Place, Washington, D. C.

American Society of International Law, 700 Jackson Place, N. W., Washington, D. C.

Carnegie Endownment for International Peace, 700 Jackson Place N. W., Washington, D. C.

Council on Foreign Relations, Inc., 45 East 65th Street, New York City.

Foreign Policy Assn., 18 East 41st Street, New York City.

Institute of Current World Affairs, 522 Fifth Ave., New York City.

International Reform Federation, 134 B St. N. E., Washington, D. C.

League of Nations Assn., 6 Eas 39th Street, New York City.

League of Nations Union, 70 Fift Ave., New York City.

National Council for Preventio of War, 532 17th Street N. W. Washington, D. C.

People's Lobby, Inc., 113 First St N. E., Washington, D. C.

Women's International League fo Peace and Freedom, 150 Fift Avenue, New York City.

Women's Peace Society, 20 Vese Street, New York City.

Women's Peace Union, 39 Pear Street, New York City.

World Peace Foundation, 40 Moun Vernon Street, Boston, Mass.

REGIONAL

American Asiatic Assn., 1 Hanove Square, New York City.

American Committee for Armenia Independence, 1 Madison Ave. New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

Armenia-America Society, 289 Fourth Ave., New York City.

China Society of America, 570 Lexington Avenue, New York City.

Committee on Cooperation in Latin America, 254 Fourth Ave., New York City.

English-Speaking Union of the United States, 19 West 44th St., New York City.

Far East Conference, 21 West Street, New York City.

French Institute in the United States, 22 East 60th Street, New York City.

Friends of Freedom for India, 799 Broadway, New York City.

Friends of Irish Freedom, 280 Broadway, New York City.

Japan Society, Inc., 36 West 44th Street, New York City.

National Assn. for Protection of American Rights in Mexico, 17 Battery Place, New York City.

Netherland Assn. of North America, 179 S. Trenchard Street, Yonkers, N. Y.

Pan-American Society, Inc., 67 Broad Street, New York City.

Pan-Pacific Union, Honolulu, Hawaii.

PART TWO
AMERICAN GOVERNMENT

DIVISION III
THE NATIONAL GOVERNMENT

PERSONNEL OF CONGRESS, 1933-34

By Milton Conover

Professor, Yale University

73D CONGRESS—FIRST SESSION

Changes.—The 73rd Congress, 1st session, began March 9, 1933. During the interval between the election of this Congress, Nov. 8, 1932 and its opening on March 9, 1933, the newly elected personnel suffered nine changes in the two houses. Five were due to death and four due to resignations.

The Senate.—The late Thomas J. Walsh of Montana, who died March 2, 1933, was succeeded by John E. Erickson, eighteen days later. Senator Robert B. Howell of Nebraska, who died March 11, 1933, was succeeded by Senator William H. Thompson May 26, 1933. Senators Cordell Hull of Tennessee and Claude A. Swanson of Virginia resigned March 3, 1933, to take places in the cabinet, and were succeeded the next day by Nathan L. Bachman and Harry Flood Byrd, respectively. All of these vacancies were filled by gubernatorial appointment.

House of Representatives.—Daniel E. Garrett of Texas died Dec. 13, 1932, and was succeeded by Joe H. Eagle Feb. 7, 1933. Representative Clay Stone Briggs of Texas, who died April 29, 1933 and Charles H. Brand of Georgia, who died May 17, left vacancies still unfilled at the beginning of the first session of the 73rd Congress. John N. Garner who resigned March 3, 1933, to become Vice-President of the United States the next day, was succeeded by Milton H. West on May 2, while the seat of Lewis W. Douglas of Arizona who resigned March 4, 1933, was left vacant. So the 73rd Congress assembled with a full Senate, but with three vacancies in the House.

The political make-up of the Senate was sixty Democrats, thirty-five Republicans, and one Farmer-Labor Senator. The House was composed of 310 Democrats, 117 Republicans, and five Farmer-Labor representatives. The senior member of the Senate is William E. Borah of Idaho who began his senatorial service March 4, 1907. Nineteen other senators began their service in 1933. In the House, Representative Edward W. Pou of North Carolina is the ranking member in service, whose continuous membership dates from March 4, 1901. One hundred and fifty-one representatives began their first term on March 4, 1933, a comely aggregation of new legislators.

AGES OF CONGRESSMEN

Sectionalism born of the War between the states became still more of a matter of history in the 73rd Congress, due to the increasing number of members too young to remember the War except from hearsay. There remained three Senators who were born prior to 1861: namely, D. U. Fletcher of Florida born in 1859, W. H. Thompson of Nebraska, and J. B. Kendrick of Texas. The House was dignified by eight different representatives of ante-bellum birth. Of the War born, that is, those born during the years 1861-1865, the Senate contained nine and the House 21. The Reconstruction Period, 1866-1876, witnessed the birth of 32 Senators of the 73rd Congress and 115 Representatives. The period 1877-1890 was the banner period for the production of 1933 national legislators: 32 Senators and 151 Representatives. During 1890-1900, there were born six Senators and 73 members of the House, while twelve Representatives were born in 1900 or thereafter. The birthdays seem to have been kept secret on the part of fourteen Senators and fifty members of the House.

BIRTH AND TRAINING

Birth Places.—Migrants held considerable place in 1933, there being 32 Senators and 120 Representatives who were born outside of the State each represented. Senator Wagner of New York was born in Germany; Davis of Pennsylvania in Wales; while Robert of Rhode Island and Couzens of Michigan are natives of Canada. The birth places of eight Senators seems obscure. The House seated eighteen foreign born members.

College Training.—The per cent of college-bred Congressman seems to have decreased slightly below the high points during the last decade (*see* THE AMERICAN YEAR BOOK, 1925-1932), the number of Senators trained in standard colleges being 65 or 67 per cent while in the House the score was 281 out of the 432 members or 65 per cent.

PROFESSION

Lawyers.—Professional representation was again led by the lawyers, as in nearly every period in American history. Consequently, it may be hoped that Prof. Harold J. Laski of London University was incorrect when he stated at Oxford that a difference between the lawyers who enter the American Congress and those who enter Parliament is that the Congressional lawyers are of the type who are unable to succeed very far in the practice of the law, while the Parliamentarian lawyers are of the type who aspire to a higher place in affairs, such as a place in the judiciary. For in 1933 there were 63 lawyers in the Senate and 244 in the House.

Business Men and Others.—Business men numbered in the second place with five in the Upper House and fifty-six in the Lower House. The Senate also included eight journalists, one physician, and one educator. The agricultural group were represented by Senators Kendrick and Carey of Wyoming, who are listed as stockmen, and Senator Frazier of North Dakota who is a regular farmer, as is Senator Townsend of Delaware. The collective talent of the House is versatile—there being nineteen teachers, seventeen journalists, eight farmers, five physicians, four dentists, three publishers, three railroad men, and two each of manufacturers, engineers, clergymen, actors; along with an Army man, a labor leader, a miner, an accountant, a mechanic, an optician, and thirty-nine who apparently have no profession other than that of politics.

POLITICAL CAREER

That politics as an honorable career is gaining prestige, or at least is not losing in prestige, is indicated by the fact that the Congressmen's biographical sketches as officially presented in the *Congressional Directory* carry few of the erstwhile highly capitalized statements "Never before held public office," as if it were a plea of "Not guilty." On the contrary it seems that eighty Senators and 330 Representatives acknowledge frankly that they have before held public office either in city, county or state governments. Some of them admit service in two or more branches of government before entering Congress. Of the Senators who had held positions in city government there were sixteen; in county affairs, fifteen; and in state legislature, thirty. Nineteen senators had been governors of a state, and twelve had served in some position in the National Government other than in the Congress. In the House, there were 128 Representatives who had been engrossed actively in city politics, 110 in county affairs, and 184 in state governments. Political party conventions have appealed to Senators as well as parliamentary councils, sixteen of them having been delegates to National party conventions, twelve in the Democratic conventions, and six in the Republican. In the House there were eighteen Democrats and thirteen Republicans who had similar service.

WAR EXPERIENCE

About six years ago a foreign professor of international relations, while teaching in an American university and advocating the League of Nations, predicted that future American aspirants for political preferment who had war records would "say less about it as time went on," apparently because it would constitute a political liability with the American public. The war-past of the 73rd Congress rather denies this prediction, for the Senate included fifteen ex-service men while the House contained 105, a great increase over other Congresses since the World War (*See* THE AMERICAN YEAR BOOK, 1925-1932).

FRATERNAL ASSOCIATION

The Senate.—Whether the Senators have taken Sinclair Lewis's *Main Street* too seriously or otherwise, it seems that fewer than a dozen of them record membership in lodges. Of these few, five are Masons, one of them being of the thirty-second degree and two being of the thirty-third degree. There are also three Odd Fellows, two Elks, one Moose and one member of the Junior Order of the United American Mechanics. Four have been members of Greek letter college fraternities, representing Sigma Alpha Epsilon, Beta Theta Pi, Phi Delta Theta, and Delta Kappa Epsilon. There are two members of the honorary scholarship society of Phi Beta Kappa, namely, Senator J. H. Bankhead of Alabama and Senator Carter Glass of Virginia who holds a membership in the mother chapter at William and Mary College, although, apparently, he never was a college student.

The House. — Members of the House apparently were greater social mixers than were their brethren of the Senate. At least 132 of them acknowledge relationships to lodges and societies. Of these 108 are Masons. These Masonic *fratres* include eleven who attained to the rank of Knight Templars, 37 who entered the Mystic Shrine, 21 who reached the thirty-second degree and three who accomplished the thirty-third degree. The Benevolent and Protective Order of Elks ranked second in membership with 67. Likewise, there are 37 Odd Fellows; 35 Knights of Pythias; nineteen Woodmen; fifteen affiliates with the Loyal Order of Moose; nine each of Red Men, Eagles, and Junior Order of United American Mechanics. There are five of the Maccabees, three Knights of Columbus, two each of Grangers, Patrons of Husbandry, Lions, Patriotic Sons of America, Foresters, and B'Nai Brith, and there is one each of the Native Sons of the Golden West, Farmers Union, Heptasophs, Rotary, and the Samaritans, in all a connotation of good American fellowship. Twenty Representatives are members of Greek letter college fraternities, three being of Phi Beta Kappa.

RELIGION

As in the matter of fraternal affiliations, it seems that but few Senators confess membership in a church —there being only three Presbyterians and two Methodists apparently. In the House, 133 reveal religious connections, there being 37 Metho-lists, 23 Baptists, 21 Episcopalians, twenty Presbyterians, thirteen Roman Catholics, five Lutherans, four Christian Church members, three Jews, two each of Christian Disciples and Protestants, and one each of Unitarians, Universalists, and Disciples of Christ.

AUTHORS

In the Senate.—Authorship in the Senate was represented by William Gibbs McAdoo of California, author of *The Challenge,* and *Crowded Years;* Arthur H. Vandenberg of Michigan, who has written volumes pertaining to Alexander Hamilton; Robert Rice Reynolds of North Carolina, author of *Wanderlust,* and *Gypsy Trails,* has traveled around the world numerous times. Senator Patrick A. McCarran of Nevada and a native of Reno who attained a legal education under private tutors, allows that he is the ''author of many standard legal opinions, leading cases on water, mining, corporation, divorce, criminal law, and civil procedure under the code.''

In the House sits Congressman O. D. Mearin of Iowa, author of *Iowa Farmer Abroad,* and *An Iowa Farmer in Foreign Fields;* Clarence Cannan of Missouri, author of *Procedure in the House of Representatives, National Convention Parliamentary Manual,* etc. A. J. Griffin and P. H. Drewry, noted authors, were returned, also James M. Beck who added to his list (*see* THE AMERICAN YEAR BOOK, 1931) *Our Wonderland of Bureaucracy.* Prof. Charles M. Bakewell of the Department of Philosophy in Yale University, a new-comer to Congress, is the author of *The American Red Cross in Italy* and of numerous works on philosophy and politics.

ACADEMIC OFFICIALS

Senate.—Several Senators had active experience in the policy forming bodies of academic institutions. Senator Arthur Capper of Kansas, has been president of the Board of Regents of the Kansas Agricultural College; M. A. Coolidge of Massachusetts was trustee and vice-president of Cushing Academy; J. W. Bailey of North Carolina, a trustee of the University of North Carolina; J. W. Metcalf of Rhode Island a trustee of Brown University and of the Rhode Island School of Design as well as president of the Rhode Island Hospital.

House. — Twelve Representatives held similar positions, among them Congressman Robert F. Rich, trustee of Dickinson College, which celebrated its Sesquicentenary anniversary in 1933, and E. W. Gibson, trustee of Norwich University—''The Military College of the State of Vermont''—whose centenary as a university is to be observed in 1934, it having been ''the mother of military schools'' in 1819, fifteen years before attaining to the collegiate rank.

MEMBERS OF THE SENATE

Compiled from the Congressional Directory, Year 1933

(Dates show beginning of service in the Senate. Names of Republicans are in Roman type; those of Democrats in *Italic;* Farmer-Labor in ROMAN CAPS.)

ALABAMA
ohn H. Bankhead (1931).
ugo L. Black (1927).

ARIZONA
enry F. Ashurst (1912).
arl Hayden (1927).

ARKANSAS
. W. Caraway (1931).
oseph T. Robinson (1913).

CALIFORNIA
Hiram W. Johnson (1917).
William M. McAdoo (1933).

COLORADO
Alva B. Adams (1933).
Edward P. Costigan (1931).

CONNECTICUT
Augustine Lonergan (1933).
Frederic C. Walcott (1929).

DELAWARE
Daniel O. Hastings (1929).
John G. Townsend, Jr. (1929).

FLORIDA
Duncan U. Fletcher (1909).
Park Trammell (1917).

GEORGIA
Walter F. George (1922).
Richard B. Russell, Jr. (1933).

IDAHO

William E. Borah (1907).
James P. Pope (1933).

ILLINOIS

William H. Dieterich (1933).
James H. Lewis (1931).

INDIANA

Arthur R. Robinson (1925).
Frederick Van Nuys (1933).

IOWA

L. J. Dickinson (1931).
Louis Murphy (1933).

KANSAS

Arthur Kapper (1919).
George McGill (1931).

KENTUCKY

Alben W. Barkley (1927).
Marvel M. Logan (1931).

LOUISIANA

Huey P. Long (1931).
John H. Overton (1933).

MAINE

Frederick Hale (1917).
Wallace H. White, Jr. (1931).

MARYLAND

Phillips L. Goldsborough (1929).
Millard E. Tydings (1923).

MASSACHUSETTS

Marcus A. Coolidge (1931).
David I. Walsh (1926).

MICHIGAN

James Couzens (1922).
Arthur H. Vandenberg (1928).

MINNESOTA

Thomas D. Schall (1925).
HENRIK SHIPSTEAD (1923).

MISSISSIPPI

Pat Harrison (1919).
Hubert D. Stephens (1923).

MISSOURI

Bennet C. Clark (1933).
Roscoe C. Patterson (1929).

MONTANA

John E. Erickson (1933).
Burton K. Wheeler (1923).

NEBRASKA

George W. Norris (1913).
William H. Thompson (1933).

NEVADA

Patrick A. McCarren (1933).
Key Pittman (1913).

NEW HAMPSHIRE

Fred H. Brown (1933).
Henry W. Keyes (1919).

NEW JERSEY

W. Warren Barbour (1932).
Hamilton F. Kean (1929).

NEW MEXICO

Sam G. Bratton (1925).
Bronson Cutting (1927).

NEW YORK

Royal S. Copeland (1923).
Robert F. Wagner (1927).

NORTH CAROLINA

Josiah W. Bailey (1931).
Robert R. Reynolds (1932).

NORTH DAKOTA

Lynn J. Frazier (1923).
Gerald P. Nye (1925).

OHIO

Robert J. Bulkley (1931).
Simeon D. Fess (1923).

OKLAHOMA

Thomas P. Gore (1931).
Elmer Thomas (1927).

OREGON

Charles L. McNary (1918).
Frederick Steiwer (1927).

PENNSYLVANIA

James J. Davis (1930).
David A. Reed (1922).

RHODE ISLAND

Felix Hebert (1929).
Jesse H. Metcalf (1924).

SOUTH CAROLINA

James F. Byrnes (1931).
Ellison D. Smith (1909).

SOUTH DAKOTA

William J. Bulow (1931).
Peter Norbeck (1921).

TENNESSEE

Nathan L. Bachman (1933).
Kenneth McKellar (1917).

TEXAS

Tom Connally (1929).
Morris Sheppard (1913).

UTAH

William H. King (1917).
Elbert D. Thomas (1933).

VERMONT

Warren R. Austin (1931).
Ernest W. Gibson (1933).

VIRGINIA

Harry F. Byrd (1933).
Carter Glass (1920).

WASHINGTON

Homer T. Bone (1933).
Clarence C. Dill (1923).

WEST VIRGINIA

Henry D. Hatfield (1929).
Matthew N. Neely (1931).

WISCONSIN

F. Ryan Duffy (1933).
Robert M. LaFollette, Jr. (1925).

WYOMING

John B. Kendrick (1917).
Joseph C. O'Mahoney (1933

MEMBERS OF THE HOUSE OF REPRESENTATIVES

Compiled from the Congressional Directory, Year 1933

(Dates show beginning of service in the House. Names of Republican are in Roman type; those of Democrats in *Italic;* Farmer-Labor i ROMAN CAPS.)

ALABAMA

1. *John McDuffie* (1919).
2. *Lister Hill* (1923).
3. *Henry B. Steagall* (1914).
4. *Lamar Jeffers* (1921).
5. *Miles C. Allgood* (1923).
6. *William B. Oliver* (1915).
7. *William B. Bankhead* (1917).
8. *A. H. Carmichael* (1933).
9. *George Huddleston* (1915

ARIZONA

At Large—*Mrs. Isabella Greenway* (1933).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

ARKANSAS

1. *William J. Driver* (1921).
2. *John E. Miller* (1931).
3. *Claude A. Fuller* (1929).
4. *Ben Cravens* (1933).
5. *David D. Terry* (1933).
6. *D. D. Glover* (1929).
7. *Tilman B. Parks* (1921).

CALIFORNIA

1. *Clarence F. Lea* (1917).
2. Harry L. Englebright (1926).
3. *Frank H. Buck* (1933).
4. Florence P. Kahn (1925).
5. Richard J. Welch (1925).
6. Albert E. Carter (1925).
7. Ralph R. Eltse (1933).
8. *John J. McGrath* (1933).
9. *Denver S. Church* (1933).
10. *Henry E. Stubbs* (1933).
11. William E. Evans (1926).
12. *John H. Hoeppel* (1933).
13. *Charles Kramer* (1933).
14. *Thomas F. Ford* (1933).
15. *William I. Traeger* (1933).
16. *John F. Dockweiler* (1933).
17. *Charles J. Colden* (1933).
18. *John H. Burke* (1933).
19. Samuel L. Collins (1933).
20. George Burnham (1933).

COLORADO

1. *Lawrence Lewis* (1933).
2. *Fred Cummings* (1933).
3. *John A. Martin* (1933).
4. *Edward T. Taylor* (1909).

CONNECTICUT

At Large—Charles M. Bakewell (1933).

1. *Herman P. Kopplemann* (1933).
2. William L. Higgins
3. *Francis T. Maloney* (1933).
4. Schuyler Merritt (1933).
5. Edward W. Goss (1930).

DELAWARE

At Large—*Wilbur L. Adams* (1933).

FLORIDA

At Large—*William J. Sears* (1933).

1. *James H. Peterson* (1933).
2. *Robert A. Green* (1925).
3. *Millard F. Caldwell* (1933).
4. *James M. Wilcox* (1933).

GEORGIA

1. *Homer C. Parker* (1931).
2. *E. E. Cox* (1925).
3. *Bryant T. Castellow* (1932).
4. *Emmet M. Owen* (1933).
5. *Robert Ramspeck* (1929).
6. *Carl Vinson* (1914).
7. *Malcolm C. Tarver* (1927).
8. *Braswell D. Deen* (1933).
9. *John S. Wood* (1931).
10. *Paul Brown* (1933).

IDAHO

1. *Compton I. White* (1933).
2. *Thomas C. Coffin* (1933).

ILLINOIS

At Large—*Martin A. Brennan* (1933).
Walter Nesbit (1933).

1. Oscar De Priest (1929).
2. P. H. Moynihan (1933).
3. *Edward A. Kelly* (1931).
4. *Harry P. Beam* (1931).
5. *Adolph J. Sabath* (1907).
6. *Thomas J. O'Brien* (1933).
7. *Leonard W. Schuetz* (1931).
8. *Leo Kocialkowski* (1933).
9. Fred A. Britten (1913).
10. James Simpson, Jr. (1933).
11. Frank R. Reid (1923).
12. John T. Buckbee (1926).
13. Leo E. Allen (1933).
14. *Chester Thompson* (1933).
15. *J. LeRoy Adair* (1933).
16. Everett M. Dirksen (1933).
17. *Frank Gillespie* (1933).
18. *James A. Meeks* (1933).
19. *Donald C. Dobbins* (1933).
20. *Henry T. Rainey* (1923).
21. *J. Earl Major* (1931).
22. *Edwin M. Schaeffer* (1933).
23. *William W. Arnold* (1923).
24. *Claude V. Parsons* (1930).
25. *Kent E. Keller* (1931).

INDIANA

1. *William T. Schulte* (1933).
2. *George R. Durgan* (1933).
3. *Samuel B. Pettengill* (1931).
4. *James I. Farley* (1933).
5. *Glenn Griswold* (1931).
6. *Virginia E. Jenckes* (1933).
7. *Arthur H. Greenwood* (1933).
8. *John W. Boehne, Jr.* (1933).
9. *Eugene B. Crowe* (1931).
10. *Finly H. Gray* (1933).
11. *Louis Ludlow* (1929).
12. *William H. Larrabee* (1931).

IOWA

1. *Edward C. Eicher* (1933).
2. *Bernhard M. Jacobsen* (1931).
3. *Albert C. Willford* (1933).
4. *Fred Biermann* (1933).
5. Lloyd Thurston (1933).
6. Cassius C. Dowell (1915).
7. *Otha D. Weorin* (1933).
8. Fred C. Gilchrist (1931).
9. *Guy M. Gillette* (1933).

KANSAS

1. W. P. Lambertson (1929)
2. U. S. Guyer (1926).
3. Harold McCugin (1931).
4. *Randolph Carpenter* (1933).
5. *W. A. Ayres* (1923).
6. *Kathryn O. McCarthy* (1933).
7. Clifford R. Hope (1926).

KENTUCKY

At Large—*Fred M. Vinson* (1931).
John Y. Brown (1933).
Andrew J. May (1931).
Brent Spence (1931).
Virgil Chapman (1931).
Glover H. Carey (1931).
William V. Gregory (1927).
Cap R. Carden (1931).
Finley Hamilton (1933).

LOUISIANA

1. *Joachim O. Fernandez* (1931).
2. *Paul H. Maloney* (1931).
3. *Numa F. Montet* (1929).
4. *John N. Sandlin* (1921).
5. *R. J. Wilson* (1915).
6. *R. E. Kemp* (1925).
7. *R. L. DeRouen* (1927).
8. *Cleveland Dear* (1933).

MAINE

1. C. L. Beedy (1921).
2. *Edward C. Moran, Jr.* (1933).
3. *John G. Utterback* (1933).

MARYLAND

1. *T. A. Goldsborough* (1921).
2. *Wm. P. Cole, Jr.* (1931).
3. *V. L. Palmisano* (1927).
4. *Ambrose J. Kennedy* (1932).
5. *S. W. Gambrill* (1924).
6. *David J. Lewis* (1931).

MASSACHUSETTS

1. A. T. Treadway (1913).
2. *W. J. Granfield* (1930).
3. Frank H. Foss (1925).
4. Pehr G. Holmes (1931).
5. Edith N. Rogers (1925).
6. A. Piatt Andrew (1921).
7. *W. P. Connery, Jr.* (1923).
8. *Arthur D. Healey* (1933).
9. Robert Luce (1919).
10. G. H. Tinkham (1915).
11. *John J. Douglas* (1925).
12. *J. W. McCormack* (1928).
13. R. B. Wigglesworth (1928).
14. J. W. Martin, Jr. (1925).
15. Charles L. Gifford (1922).

MICHIGAN

1. *George G. Sadowski* (1933).
2. *John C. Lehr* (1933).
3. Joseph L. Hooper (1925).
4. *George E. Foulkes* (1933).
5. Carl E. Mapes (1913).
6. *Claude E. Cady* (1933).
7. Jesse P. Wolcott (1931).
8. *Michael J. Hart* (1931).
9. *Harry W. Musselwhite* (1933).
10. Roy O. Woodruff (1921).
11. *Prentiss M. Brown* (1933).
12. W. Frank James (1915).
13. C. J. McLeod (1923).
14. *Carl M. Weideman* (1933).
15. *John D. Dingell* (1933).
16. *John Lesinski* (1933).
17. George A. Dondero (1933).

MINNESOTA

At Large—MAGNUS JOHNSON (1933).
PAUL J. KVALE (1923).
HENRY ARENS (1933).
ERNEST LUNDEEN (1933).
Theodore Christiansen (1933).
Einar Hoidale (1933).
Ray P. Chase (1933).
FRANCIS H. SHOEMAKER (1933).
Harold Knutson (1917).

MISSISSIPPI

1. *John E. Rankin* (1921).
2. *Wall Doxey* (1929).
3. *W. M. Whittington* (1925).
4. *Jeff Busby* (1923).
5. *Ross A. Collins* (1921).
6. *William M. Colmer* (1933).
7. *Russell Ellzey* (1932).

MISSOURI

At Large—*John J. Cochran* (1927).
James R. Claiborne (1933).
Joseph B. Shannon (1931).
Clyde Williams (1931).
Clarence Cannon (1923).
Frank H. Lee (1933).
James E. Ruffin (1933).
Ralph F. Lozier (1923).
Jacob L. Milligan (1923).
Reuben T. Wood (1933).
M. A. Romjue (1923).
Richard M. Duncan (1933).
Clement C. Dickinson (1931).

MONTANA

1. *Joseph P. Monaghan* (1933).
2. *Roy E. Ayers* (1933).

NEBRASKA

1. *John H. Moorehead* (1923).
2. *Edward R. Burke* (1933).
3. *Edgar Howard* (1923).
4. *Ashton C. Shallenberger* (1931).
5. *Terry M. Carpenter* (1933).

NEVADA

At large—*James G. Scrugham* (1933).

NEW HAMPSHIRE

1. *William N. Rogers* (1932).
2. Charles W. Tobey (1933).

NEW JERSEY

1. C. A. Wolverton (1926).
2. Isaac Bacharach (1915).
3. *William H. Sutphin* (1931).
4. D. Lane Powers (1933).
5. Charles A. Eaton (1925).
6. Donald H. McLean (1933).
7. Randolph Perkins (1921).
8. George N. Seger (1923).
9. *Edward A. Kenney* (1933).
10. F. A. Hartley, Jr. (1929).
11. Peter A. Cavicchia (1931).
12. Frederick R. Lehlbach (1915).
13. *Mary T. Norton* (1925).
14. *O. L. Auf der Heide* (1925).

NEW MEXICO

At large—*Dennis Chavez* (1931).

NEW YORK

At large—*Elmer E. Studley* (1933).
John Fitzgibbons (1933).

1. Robert L. Bacon (1923).
2. *W. F. Brunner* (1929).
3. *George W. Lindsay* (1923).
4. *Thomas H. Cullen* (1919).
5. *L. M. Black, Jr.* (1923).
6. *Andrew L. Somers* (1925).
7. *John J. Delaney* (1931).
8. *Patrick J. Carley* (1927).
9. *Stephen A. Rudd* (1931).
10. *Emanuel Celler* (1923).
11. *Anning S. Prall* (1923).
12. *Samuel Dickstein* (1923).
13. *C. D. Sullivan* (1917).
14. *W. I. Sirovich* (1927).
15. *John J. Boylan* (1923).
16. *J. J. O'Connor* (1923).
17. *Theodore A. Peyser* (1933).
18. *M. J. Kennedy* (1930).
19. *Sol Bloom* (1923).
20. *James J. Lanzetta* (1933).
21. *J. A. Gavagan* (1929).
22. *Anthony J. Griffin* (1917).
23. *Frank Oliver* (1923).
24. *J. M. Fitzpatrick* (1926).
25. Charles D. Millard (1931).
26. Hamilton Fish, Jr. (1920).
27. Philip A. Goodwin (1933).
28. *Parker Corning* (1923).
29. James S. Parker (1913).
30. Frank Crowther (1919).
31. Bertrand H. Snell (1915).
32. Francis D. Culkin (1928).
33. *Fred J. Sisson* (1933).
34. Vacant.
35. C. E. Hancock (1927).
36. John Taber (1923).
37. Gale H. Stalker (1923).
38. James L. Whitley (1929).
39. James W. Wadsworth (1933).
40. Walter G. Andrews (1931).
41. *Alfred F. Beiter* (1933).
42. *James M. Mead* (1919).
43. Daniel A. Reed (1919).

NORTH CAROLINA

1. *Lindsay C. Warren* (1925).
2. *John H. Kerr* (1923).
3. *C. L. Abernethy* (1922).
4. *Edward W. Pou* (1901).
5. *F. W. Hancock, Jr.* (1930).
6. *William B. Umstead* (1933).
7. *J. Bayard Clark* (1929).
8. *John W. Lambeth* (1931).
9. *R. L. Doughton* (1911).
10. *A. L. Bulwinkle* (1931).
11. *Zebulon Weaver* (1931).

NORTH DAKOTA

At large—J. H. Sinclair (1919).
William Lemke (1933).

OHIO

At large—*Stephen M. Young* (1933).
Charles V. Truax (1933).

1. John B. Hollister (1931).
2. William E. Hess (1929).
3. *Byron B. Harlan* (1931).
4. *Frank L. Kloeb* (1933).
5. *Frank C. Kniffin* (1931).
6. *James G. Polk* (1931).
7. Le Roy T. Marshall (1933).
8. *Brooks Fletcher* (1933).
9. *Warren Duffey* (1933).
10. T. A. Jenkins (1925).
11. *M. G. Underwood* (1923).
12. *Arthur P. Lamneck* (1931).
13. *William L. Fiesinger* (1931).
14. *Dow W. Harter* (1933).
15. *Robert C. Secrest* (1933).
16. *William R. Thom* (1933).
17. *Charles West* (1931).
18. *Lawrence E. Imhoff* (1933).

19. John G. Cooper (1915).
20. *Martin L. Sweeney* (1931).
21. *Robert Crosser* (1923).
22. Chester C. Bolton (1929).

OKLAHOMA

At large—*Will Rogers* (1933).
1. *Wesley E. Disney* (1931).
2. *W. W. Hastings* (1923).
3. *Wilburn Cartwright* (1927).
4. *T. D. McKeown* (1923).
5. *Fletcher B. Swank* (1931).
6. *Jed Johnson* (1926).
7. *J. V. McClintic* (1915).
8. *Ernest W. Marland* (1933).

OREGON

1. James W. Mott (1933).
2. *Walter M. Pierce* (1933).
3. *Charles H. Martin* (1931).

PENNSYLVANIA

1. Harry C. Ransley (1920).
2. James M. Beck (1927).
3. Alfred M. Waldron (1933).
4. George W. Edmonds (1933).
5. J. J. Connolly (1921).
6. Edward L. Stokes (1931).
7. George P. Darrow (1915).
8. James Wolfenden (1928).
9. *Oliver W. Frey* (1933).
10. J. R. Kinzer (1930).
11. *Patrick J. Boland* (1931).
12. C. M. Turpin (1929).
13. George F. Brumm (1929).
14. *William E. Richardson* (1933).
15. L. T. McFadden (1915).
16. Robert F. Rich (1930).
17. J. William Ditter (1933).
18. Benjamin K. Focht (1933).
19. Isaac H. Doutrich (1926).
20. T. C Cochran (1926).
21. *Francis E. Walter* (1933).
22. *Harry L. Haines* (1931).
23. J. Banks Kurtz (1923).
24. *J. Buell Snyder* (1933).
25. *Charles I. Faddis* (1933).
26. J. Howard Swich (1927).
27. Nathan L. Strong (1917).
28. *William M. Berlin* (1933).
29. *Charles N. Crosby* (1933).
30. *J. Twing Brooks* (1933).
31. Clyde Kelly (1917).
32. Michael J. Muldowney (1933).
33. *Henry Ellenbogen* (1933).
34. *Matthew A. Dunn* (1933).

RHODE ISLAND

1. *Francis B. Condon* (1930).
2. *John M. O'Connell* (1933).

SOUTH CAROLINA

1. *T. S. McMillan* (1925).
2. *H. P. Fulmer* (1921).
3. *John C. Taylor* (1933).
4. *John J. McSwain* (1921).
5. *James P. Richards* (1933).
6. *Allard H. Gasque* (1923).

SOUTH DAKOTA

1. *Fred Hildebrandt* (1933).
2. *Theodore B. Werner* (1933).

TENNESSEE

1. B. Carroll Reece (1933).
2. J. Will Taylor (1919).
3. *S. D. McReynolds* (1923).
4. *John R. Mitchell* (1931).
5. *Joseph W. Byrns* (1909).
6. *Clarence W. Turner* (1933).
7. *Gordon Browning* (1923).
8. *Jere Cooper* (1929).
9. *Edward H. Crump* (1931).

TEXAS

At large—*George B. Terrell* (1933).
Sterling P. Strong (1933).
Joseph W. Bailey, Jr. (1933).
1. *Wright Patman* (1929).
2. *Martin Dies* (1931).
3. *Morgan G. Sanders* (1921).
4. *Sam Rayburn* (1913).
5. *H. W. Sumners* (1913).
6. *Luther A. Johnson* (1923).
7. *Clark W. Thompson* (1933).
8. *Joe H. Eagle* (1933).
9. *J. J. Mansfield* (1917).
10. *J. P. Buchanan* (1913).
11. *O. H. Cross* (1929).
12. *Fritz G. Lanham* (1919).
13. *William D. McFarlane* (1933).
14. *Richard M. Kleeberg* (1931).
15. *Milton H. West* (1933).
16. *Robert E. Thomason* (1931).
17. *T. L. Blanton* (1916).
18. *Marvin Jones* (1917).

UTAH

1. *Abe Murdock* (1933).
2. *J. W. Robinson* (1933).

VERMONT

At large—Ernest W. Gibson (1923).

VIRGINIA

At large—*Schuyler O. Bland* (1918).
A. J. Montague (1913).
Patrick H. Drewry (1920).
Thomas G. Burch (1931).
C. A. Woodrum (1923).
Howard W. Smith (1931).
John W. Flanningan, Jr. (1931).
A. Willis Robertson (1933).
Colgate W. Darden, Jr. (1933).

WASHINGTON

1. *Marion O. Zioncheck* (1933).
2. *Monrad C. Wallgren* (1933).
3. *Martin F. Smith* (1933).
4. *Knute Hill* (1933).
5. *Samuel B. Hill* (1923).
6. *Wesley Lloyd* (1933).

WEST VIRGINIA

1. *Robert L .Ramsay* (1933).
2. *Jennings Randolph* (1933).
3. *Andrew Edmiston Jr.* (1933).
4. *George W. Johnson* (1933).
5. *John Kee* (1933).
6. *Joe L. Smith* (1929).

WISCONSIN

1. George W. Blanchard (1933).
2. *Charles W. Henney* (1933).
3. Gardner R. Withrow (1931).
4. *Raymond J. Cannon* (1933).
5. *Thomas O'Malley* (1933).
6. *Michael K. Reilly* (1913).
7. Gerald J. Boileau (1931).
8. *James H. Hughes* (1933).
9. James A. Frear (1913).
10. Hubert H. Peavy (1923).

WYOMING

At large—Vincent Carter (1929).

ALASKA

Anthony J. Dimond (1933).

HAWAII

Lincoln L. McCandless (1933).

PHILIPPINE ISLANDS

1. Pedro Guevara (1923).
2. Camilo Osias (1929).

PUERTO RICO

Santiago Iglesias (1933).

III. THE NATIONAL GOVERNMENT

PERSONNEL OF THE ADMINISTRATION

By Milton Conover

Professor, Yale University

CHANGES IN THE STATE DEPARTMENT

The inauguration of President Franklin Delano Roosevelt on March 4, 1933, was marked subsequently by sweeping changes in the administrative personnel, the first of its kind since 1921. In the Cabinet, Henry L. Stimson was succeeded by former Senator Cordell Hull of Tennessee as Secretary of State, with William Phillips as the undersecretary, in place of William R. Castle, Jr. Wilbur J. Carr and Francis White were continued as assistant Secretaries of State, while Prof. Raymond Moley of Columbia University was made another assistant secretary, James Grafton Rogers and Harvey H. Bundy leaving the service. Dr. Moley was regarded as "Head of the Brain Trust," but subsequently resigned and became editor of a new journal of affairs. William C. Bullitt was made assistant to the Secretary, but subsequently was made Ambassador to Russia.

CHANGES IN THE TREASURY DEPARTMENT

Secretary of the Treasury, Ogden Livingston Mills of New York City, was succeeded by William Hartman Woodin of New York City, who, after a leave of absence, resigned, and was succeeded by Henry Morgenthau, Jr. Mr. Woodin is a native of Pennsylvania and was educated at the Columbia University School of Mines. Dean G. Acheson succeeded Arthur A. Ballantine as undersecretary, but later resigned. Laurence W. Robert, Jr., and Stephen B. Gibbons acceded to the assistant secretaryships in place of Ferry K. Heath and Seymour Lowman, while James H. Douglas was continued in charge of fiscal offices. Other Treasury Department changes occurred in the offices of Comptroller, Treasurer, Commissionership of Customs, and the Commissionership of Internal Revenue. Mrs. Nellie Tayloe Ross, former Governor of Colorado, was made Director of the Mint, and Lewis W. Douglas became Director of the Bureau of the Budget.

CHANGES IN OTHER DEPARTMENTS

War.—To the Department of War was appointed George Henry Dern of Salt Lake City, Utah, as Secretary in succession to Patrick J. Hurley. He is a native of Nebraska, was educated at a normal college and at the University of Nebraska. Like his colleague, Secretary Woodin, he has had extensive professional interests in mining, having been general manager of a gold mines company. Harry H. Woodring became his assistant secretary in place of Frederick H. Payne.

Justice. — As Attorney General, Homer S. Cummings of Connecticut succeeded William De Witt Mitchell. He was born in Chicago, educated at Yale and had been active in Connecticut politics for more than thirty years. As Solicitor General, James Crawford Biggs succeeded Thomas Day Thacher.

Post Office. — The Post Master Generalship, always a unique post as a cabinet position, was assigned to James A. Farley in place of Walter F. Brown. Mr. Farley was educated at Packard Commercial School, and had served as port warden in New York City under Governor Alfred E. Smith. He was a member of the State Athletic Commission from 1924 until 1933, and has been chairman of the Democratic National Committee during the presidential campaign of 1932. He is widely known in fraternal circles, being a member of the Knights of Columbus, Red Men, Elks, and Eagles. As executive assistant to the Post Master General, Harllee Branch replaced Harold N. Graves, while J. Austin Latimer as secretary, replaced Kenneth C. Macpherson. In the assistant post master generalships, Messrs. Joseph C. O'Mahoney, William W. Howes, Clinton B. Eilenberger and Silliman Evans, assumed their relative ranks.

Navy. — Former Senator Claude Augustus Swanson of Virginia, became Secretary of the Navy in place of Charles Francis Adams. He recalls a former conventional type of American statesman, having taught school at the age of sixteen, attended a collegiate institution for one session "not having the means to complete his college course," later resuming college and attaining to the degree of A.B., then studying law and entering Congress. Henry L. Roosevelt was made assistant secretary of the Navy, as had two other Roosevelts before him, both of them subsequently succeeding to the Presidency. He replaced Ernest Lee Jahncke.

Interior.—Harold L. Ickes, of Illinois, became Secretary of the Interior in place of Ray Lyman Wilbur of California. He is a native of Pennsylvania, a lawyer and a graduate of the University of Chicago. In politics he had been a member of the Progressive Party National Executive Committee in 1915-16, and was also a member of the National Campaign Committee which was in charge of the presidential campaign of Charles E. Hughes. In 1920, he was a delegate to the Republican National Convention of 1920 which nominated President Harding. In 1924, he was one of the managers of the presidential campaign of Hiram W. Johnson. The assistant secretaries are Theodore A. Walters and Oscar L. Chapman, in place of Joseph M. Dixon and John H. Edwards. New appointees to the headships of bureaus in the Interior Department include Commissioner Fred W. Johnson of the General Land Office; and John Collier, of the Bureau of Indian Affairs. George F. Zook, former president of the University of Akron, was called to the Commissionership of Education. Prior to his presidency of Akron, he had been a specialist in higher education in the old Bureau of Education.

Agriculture.—Considerable interest is attached to the appointment of Henry Agard Wallace of Iowa to the Secretaryship of Agriculture as the immediate successor to Arthur Mastick Hyde. He was born on a farm in Iowa in 1888, the son of Henry Cantwell Wallace who was Secretary of Agriculture in President Harding's Cabinet. He is the grandson of Henry Wallace who was in President Theodore Roosevelt's Country Life Commission. He was educated at Iowa State College and later achieved high recognition for scientific scholarship in agricultural economics.

Dr. R. G. Tugwell, economics professor in Columbia University, regarded as a leader in the "Brain Trust" was made, technically, assistant secretary of Agriculture instead of R. W. Dunlap. He has been regarded as one fostering many of the Departmental plans with a view to guiding the agricultural destinies through the depression. Paul H. Appleby was appointed assistant to the Secretary, vice E. N. Meador. All of the bureau chiefs in the Department were carried over into the Wallace administration, but death caused a vacancy in the chieftaincy of the Forest Service with the passing of Major Robert Y. Stuart, who had recently been awarded the Doctor of Science degree by Dickinson College.

Commerce.—Daniel Calhoun Roper, of South Carolina, acceding to the Secretaryship of Commerce returns the older South to its traditional administrative eminence. For Mr. Roper is of the older South if not of the deep South. He is a graduate of old Trinity College, (Duke University), North Carolina, and has served in the South Carolina Legislature, and the General Conference of the Methodist Episcopal Church, South. Under President Wilson he had been first assistant Post Master General, vice chairman of the U. S. Tariff Commission, Commissioner of Internal Revenue and a member of several boards and commissions. As Assistant Secretary of Commerce, Dr. John Dickinson, professor of law at the University of Pennsylvania, accepted the chair previously occupied by Dr. Julius Klein, of Harvard.

Prof. Dickinson has been considered as one of the most resourceful if most inconspicuous member of the "Brain Trust" or "Little Cabinet." Apparently avoiding publicity, he has drawn heavily on accumulated academic reserves, being an A.B. of John Hopkins; Ph.D. in Politics at Princeton; S. J. D. of Harvard Law School; and a former teacher of Government at Harvard, Princeton, and Brookings Institution — declining a full professorship of Government at Yale—later becoming a law professor at Pennsylvania. Two bureau directorships were changed in the Department of Commerce, William L. Austin succeeding William M. Steuart in the Bureau of the Census; and, Frank T. Bell succeeding Henry O'Malley in the Bureau of Fisheries.

Labor.—The Department of Labor was graced by a lady Secretary—Frances Perkins of New York, (Mr Paul Wilson). She is a graduate of Mt. Holyoke College and of Columbia University, and has been a lecturer at Adelphi College. She is a recognized sociologist with wide experience in the New York State Industrial Commission, Council on Immigrant Education, American Child Hygiene Association, Consumers League of New York, Child Labor Committee, Maternity Center Association, etc., and author of numerous social studies. The new Commissioner General of Immigration is Daniel W. MacCormack vice Harry E. Hull. Mary LaDame became acting supervising director of the U. S. Employment Service, and Charles E. Wyzanski, Jr., was made president of the U. S. Housing Corporation.

FEDERAL ADMINISTRATIVE ORGANIZATION

By William M. Schuyler

Associate Editor, *The American Year Book*

THE PRESIDENT AND VICE-PRESIDENT

President.—Franklin Delano Roosevelt, of New York (Democrat). Sworn into office as President of the United States, March 4, 1933, in succession to Herbert Hoover.

Vice-President. — John Nance Garner of Texas (Democrat), Inaugurated Vice-President of the United States, March 4, 1933.

Secretaries to the President. — Louis McHenry Howe (Indianapolis); Marvin Hunter McIntyre (Kentucky); Stephen Early (Virginia); Marguerite Le Hand.

Presidential Vacancy.—By Act of Congress, in the case of vacancy occurring in the office of President through the death or removal of both the President and Vice-President, the Cabinet officers succeed to the Presidency in the order indicated in the arrangement of the following summary of the executive departments:

DEPARTMENT OF STATE

Secretary of State.—Cordell Hull.

Undersecretary of State.—William Phillips.

Assistant Secretaries of State.—Wilbur J. Carr, Harry F. Payer, Sumner Welles.

Foreign Service Personnel Board.—Wilbur J. Carr, Assistant Secretary of State, chairman; Thomas M. Wilson.

Legal Adviser.—Green H. Hackworth.

Economic Adviser.—Herbert Feis.

Chief Clerk and Administrative Assistant.—Clinton E. MacEachran.

Assistant to the Secretary of State.—Harry A. McBride.

Chiefs of Divisions.—

- Far Eastern Affairs.—Stanley K. Hornbeck.
- Latin-American Affairs. — Edwin C. Wilson.
- Western European Affairs.—Jay P. Moffat.

Near Eastern Affairs.—Wallace S. Murray.
Mexican Affairs. — Hershel V. Johnson.
Eastern European Affairs.—Robert F. Kelley.
Passport.—Ruth B. Shipley.
Current Information.—Michael J. McDermott.
Foreign Service Administration.—Herbert C. Hengstler.
International Conferences.—James Clement Dunn.
Treaty.—Charles M. Barnes.
Foreign Service Personnel.—Thomas M. Wilson.

Chiefs of Bureaus.—
Accounts.—William McNeir.
Communications and Records.—David A. Salmon.
Translating.—Emerson B. Christie.

Chiefs of Offices.—
Consular Commercial. — James J. Murphy, Jr.
Historical Advisor.—Hunter Miller.
Coordination and Review.—Margaret M. Hanna.
Visa.—Anderson Dana Hodgdon.
Foreign Service Buildings.—Robert J. Phillips (Assistant Chief Acting).
Foreign Service School. — Lowell C. Pinkerton.

Disbursing Officer. — W. Ford Cramer.

DEPARTMENT OF THE TREASURY

Secretary of the Treasury.—Henry Morgenthau, Jr.

Charged with the management of the national finances. He prepares plans for the improvement of the public revenue and support of the public credit; superintends collection of the moneys paid from and into the Treasury; controls construction of public buildings, coinage and printing of money, and the administration of the Coast Guard and the Public Health Service; ex-officio chairman of the Federal Reserve Board and of the Federal Farm Loan Board.

Undersecretary of the Treasury.—Marriner Stoddard Eccles.

Assistant Secretary in Charge of Fiscal Offices.—Thomas Hewes.

Assistant Secretary in Charge of Public Buildings, Public Health and Miscellaneous. — Laurence Wood Robert, Jr.

Assistant Secretary in Charge of Customs, Coast Guard, Industrial Alcohol and Narcotics. — Stephen B. Gibbons.

Assistant to the Secretary.—John Kieley.

Chief Clerk and Superintendent.—F. A. Birgfeld.

Commissioner of the Public Debt.—William S. Broughton.

Commissioner of Accounts and Deposits.—D. W. Bell.

Chiefs of Divisions.—
Appointments.—James E. Harper.
Bookkeeping and Warrants. — A. M. Smith.
Deposits.—E. D. Batchelder.
Loans and Currency. — Marvin Wesley.
Paper Custody.—M. A. Emerson.
Accounts and Audit.—M. R. Loafman.
Secret Service.—W. H. Moran.
Supply.—L. C. Spangler.
Section of Financial and Economic Research.—W. R. Stark.
Disbursing Clerk.—J. L. Summers.
Government Actuary.—A. S. McLeod.

Comptroller of the Currency.—J. F. T. O'Connor.

Has supervision of the national banks, their examination and reports; preparation and issue of national bank circulation; redemption and destruction of national bank notes. Ex-officio member of the Federal Reserve Board in which capacity he draws a salary of $7,000 in addition to the salary of $5,000 attached to the office proper of Comptroller of the Currency.

Treasurer of the United States.—William A. Julian.

Charged with the receipts and disbursement of all public moneys deposited in the Treasury and Sub-Treasuries and in national bank depositaries.

Director of the Bureau of the Budget.—Lewis W. Douglas.

Commissioner of the Bureau of Customs.—James H. Moyle.

Commissioner of the Bureau of Internal Revenue.—Guy T. Helvering.

Charged with general supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Director of the Bureau of the Mint.—Nellie Tayloe Ross.

Has general supervision of the mints and assay offices.

Commissioner of Industrial Alcohol.—J. M. Doran.

Commissioner of Narcotics.—H. J. Anslinger.

Register of the Treasury.—W. W. Durbin.

Federal Farm Credit Administration.—W. I. Myers, Herbert E. Gaston, Herman Iliphant, Albert S. Goss, Francis W. Peck, George M. Brennan.

Director of the Bureau of Engraving and Printing.—Alvin W. Hall.

Produces all the securities and similar work of the Government printed from steel plates.

Bureau of the Public Health Service.—Hugh S. Cumming, Surgeon General.

Charged with the framing and enforcement of regulations for the prevention of the introduction and spread of contagious disease; supervision of the quarantine service of the United States, and supervision of the marine hospitals.

Coast Guard.—Rear Admiral Harry G. Hamlet, Commandant.

Office of the Supervising Architect.—James A. Wetmore, Acting Supervising Architect.

Custom House.—Charles R. Lewis, Deputy Collector in Charge.

DEPARTMENT OF WAR

Secretary of War.—George H. Dern.

The Assistant Secretary of War.—Harry H. Woodring.

Assistant Secretary of War.—Vacant.

Assistant Chief Clerk.—Frank M. Hoadley.

Executive to the Assistant Secretary of War.—Lt. Col. James K. Crain.

Clerk to the Secretary of War.—John W. Schott.

War Department General Staff.—General Douglas MacArthur, Chief of Staff; Major General Hugh A. Drum, Deputy Chief of Staff.

Office of the Chief Cavalry.—Major General Guy V. Henry, Chief.

Chief of Field Artillery.—Major General Harry G. Bishop.

Chief of Coast Artillery.—Major General John W. Gulick.

Chief of Infantry.—Major General Edward Croft.

Chief of Chaplains. — Julian E. Yates.

The Adjutant General. — Major General James F. McKinley.

The Inspector General. — Major General John F. Preston.

The Judge Advocate General. — Major General Blanton Winship.

The Quartermaster General.—Major General J. L. DeWitt.

Chief of Finance.—Major General Frederick W. Coleman.

Surgeon General.—Major General Robert U. Patterson.

Chief of Engineers.—Major General E. M. Markham.

Chief of Ordnance.—Major General Samuel Hof.

Chief Signal Officer.—Major General Irving J. Carr.

Chief of the Air Corps.—Major General B. D. Foulois.

Chief of the Bureau of Insular Affairs. — Brigadier General Creed F. Cox.

Philippine Government. — Frank Murphy.

Puerto Rico Government.—Robert Hayes Gore.

Chief of the National Guard Bureau. — Major General George E. Leach.

Chief of the Chemical Warfare Service.—Major General Claude E. Brigham.

The Army War College.—Major General George S. Simonds, Commandant.

DEPARTMENT OF JUSTICE

Attorney General.—Homer S. Cummings.

Represents the United States in all legal matters.

Solicitor General.—James C. Biggs.

Assistant to the Attorney General.—William Stanley.

Assistant Attorneys General.—Pat Malloy, Harold M. Stephens, George C. Sweeney, Frank J. Wideman, one vacancy, Charles D. Lawrence (Division of Customs).

Director of the Bureau of Investigation.—J. Edgar Hoover.

Executive Assistant to the Attorney General.—Ugo J. A. Carusi.

Administrative Assistant.—Charles E. Stewart.

General Agent and Chief Clerk.—John W. Gardner.

Assistant Chief Clerk and Appointment Clerk.—Charles B. Sornborger.

Chief of the Division of Mails and Files.—Arthur Robb.

Chief of the Division of Supplies and Printing.—Edward N. Bodholdt.

Librarian.—George Kearney.

Director of the Bureau of Prisons.—Sanford Bates.

Attorney in Charge of Pardons.—James A. Finch.

Disbursing Clerk.—Harry B. Dellett.

POST OFFICE DEPARTMENT

Postmaster General.—James A. Farley.

Secretary to the Postmaster General.—J. Austin Latimer.

First Assistant Postmaster General.—Joseph C. O'Mahoney.

Second Assistant Postmaster General.—William W. Howes.

Third Assistant Postmaster General.—Clinton B. Eilenberger.

Fourth Assistant Postmaster General.—Silliman Evans.

Comptroller.—William L. Slattery.

Director of Parcel Post.—Jesse C. Harraman.

Solicitor.—Karl A. Crowley.

Chief Post Office Inspector.—Kildroy P. Aldrich.

DEPARTMENT OF THE NAVY

Secretary of the Navy.—Claude A. Swanson.

The Assistant Secretary of the Navy.—Henry L. Roosevelt.

Chief Clerk.—F. S. Curtis.

Chief of Appointment Division.—William D. Bergman.

Disbursing Clerk.—A. H. Hoiland.

Chief of Division of Records.—Charles T. Ogle.

Budget Officer.—Rear Admiral Claude C. Bloch.

Island Governments.—

Guam.—Captain George A. Alexander, Governor.

American Samoa.—Captain George B. Landenberger, Governor.

Virgin Islands.—Dr. Paul M. Pearson, Governor.

Chief of Naval Operations.—Admiral William H. Standley.

Chief of the Bureau of Navigation.—Rear Admiral N. B. Leahy.

Chief of the Bureau of Yards and Docks.—Rear Admiral A. L. Parsons.

Chief of the Bureau of Ordnance.—Rear Admiral E. B. Larimer.

Chief of the Bureau of Construction and Repair.—Rear Admiral Emory S. Land.

Chief of the Bureau of Engineering.—Rear Admiral Samuel M. Robinson.

Chief of the Bureau of Supplies and Accounts.—Rear Admiral Christian J. Peoples.

Chief of the Bureau of Medicine and Surgery.—Rear Admiral P. S. Rossiter.

Chief of the Bureau of Aeronautics.—Rear Admiral Ernest J. King.

Judge Advocate General.—Rear Admiral O. G. Murfin.

Naval Consulting Board.—Vacant.

Compensation Board.—Rear Admiral W. L. Capps (retired), senior member.

General Board.—Rear Admirals R. H. Leigh, H. H. Christy, Frank H. Clark, Clark H. Woodward, Captains E. S. Jackson, W. S. Anderson, Commander R. E. Schuirmann, Lieutenant Commander G. W. Dugger, Jr.

President of the Board of Medical Examiners.—Rear Admiral Charles P. Kindleberger.

President of the Naval Examining Board.—Captain Hilary H. Royall.

President of the Naval Retiring Board.—Rear Admiral Charles P. Kindleberger.

Naval Dispensary.—Captain Edgar L. Woods.

Navy Yard and Station, Washington, D. C.—Rear Admiral H. V. Butler, Commandant.

Naval Medical School.—Captain William H. Bell.

Navy Hospital. — Captain Curtis B. Munger.

Attendance on Officers. — Lieutenant Commander Leo C. Thyson.

President of the Board for Examination of Medical Officers.—Captain William H. Bell.

President of the Board of Examination of Dental Officers.—Captain William H. Bell.

Headquarters Marine Corps. — Major General Ben. H. Fuller, Commandant; Brigadier General Rufus H. Lane, Adjutant and Inspector; Brigadier General Hugh Matthews, Quartermaster; Brigadier General George Richards, Paymaster.

Marine Barracks.—Colonel Charles B. Taylor, commanding.

DEPARTMENT OF THE INTERIOR

Secretary of the Interior.—Harold L. Ickes.

Charged with pensions, public lands, Indian Affairs, geological surveys, reclamation of arid lands, and mines.

First Assistant Secretary.—Theodore A. Walters.

Assistant Secretary. — Oscar L. Chapman.

Administrative Assistant. — Ebert K. Burlew.

Chief Clerk.—Floyd E. Dotson (acting).

Solicitor.—Nathan R. Margold.

Supervisor of Classification.—John Harvey.

Commissioner of the General Land Office.—Fred W. Johnson.

Commissioner of the Bureau of Indian Affairs.—John Collier.

Commissioner of the Office of Education.—George F. Zook.

Director of the Geological Survey.—W. C. Mendenhall.

Commissioner of the Bureau of Reclamation.—Elwood Mead.

Director of the National Park Service.—Arno B. Cammerer.

Territorial Officials.—

Alaska.—John W. Troy, Governor.

Hawaii.—Lawrence M. Judd, Governor.

The Alaska Railroad.—Otto F. Ohlson, General Manager.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—Henry A. Wallace.

Assistant Secretary.—Rexford G. Tugwell.

Assistants to the Secretary.—Paul H. Appleby, C. B. Baldwin, F. P. Bartlett.

Director of Scientific Work.—A. F. Woods.

Director of Extension Work.—C. W. Warburton.

Director of Pensonnel and Business Administration.—W. W. Stockberger.

Director of Information.—Milton S. Eisenhower.

Solicitor.—Seth Thomas.

Librarian.—Claribel R. Barnett.

Office of Experiment Stations.—James T. Jardine.

Weather Bureau.—Charles F. Marvin, Chief.

Bureau of Animal Industry.—John R. Mohler, Chief.

Bureau of Dairy Industry.—O. E. Reed, Chief.

Bureau of Plant Industry. — Knowles Ryerson, Chief.

Forest Service.—R. Y. Stuart, Forester and Chief.

Bureau of Chemistry and Soils.—Henry G. Knight, Chief.

Bureau of Entomolgy.—C. L. Marlatt, Chief.

Bureau of Biological Survey.—Paul G. Redington, Chief.

Bureau of Public Roads.—Thomas H. MacDonald, Chief.

Bureau of Agricultural Economics.—S. H. McCrory, Chief.

Bureau of Home Economics.—Louise Stanley, Chief.

Plant Quarantine and Control Administration.—Lee A. Strong, Chief.

Grain Futures Administration.—J. W. T. Duvel, Chief.

Food and Drug Administration.—W. G. Campbell, Chief.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—Daniel C. Roper.

Assistant Secretaries.—John Dickinson, Ewing Y. Mitchell.

Administrative Assistant to the Secretary.—Malcolm Kerlin.

Solicitor.—South Trimble, Jr.

Chief Clerk and Superintendent.—E. W. Libbey.

Disbursing Clerk. — Charles E. Molster.

Appointments.—Edw. J. Gardner.
Publications.—Thomas F. McKeon.
Purchases and Sales. — Walter S. Erwin.

Librarian.—Charlotte L. Carmody.

Director of Air Regulation.—Eugene L. Vidal.

Director of the Bureau of Census.—William L. Austin.

Director of the Bureau of Foreign and Domestic Commerce. — Willard L. Thorp.

Director of the Bureau of Standards.—Lyman J. Briggs.

Commissioner of the Bureau of Fisheries.—Frank T. Bell.

Commissioner of the Bureau of Lighthouses.—George R. Putnam.

Director of the Coast and Geodetic Survey.—R. S. Patton.

Assistant Directors of the Bureau of Navigation. — Arthur J. Tyrer (Navigation), Dickerson N. Hoover (Steamboat Inspection).

Commissioner of the Patent Office.—Conway P. Coe.

Director of the Bureau of Mines.—Scott Turner.

DEPARTMENT OF LABOR

Secretary of Labor. — Frances Perkins.

Charged with the duty of fostering, promoting and developing the welfare of the wage earners of the United States and also working towards a solution of the labor problems.

The Assistant Secretary. — Edward F. McGrady.

Second Assistant Secretary.—W. W. Husband.

Assistants to the Secretary.—Turner W. Battle, Richardson Saunders.

Solicitor. — Charles E. Wyzanski, Jr.

Chief Clerk.—Samuel J. Gompers.

Disbursing Clerk. — John R. Demorest.

Director of Conciliation.—Hugh L. Kerwin.

Commissioner of Labor Statistics.—Isador Lubin.

Commissioner General of Immigration and Naturalization.—Daniel W. MacCormack.

Chief of the Children's Bureau.—Grace Abbott.

Director of the Women's Bureau.—Mary Anderson.

United States Employment Service.—W. Frank Persons, Director.

United States Housing Corporation.—Charles E. Wyzanski, President.

MISCELLANEOUS EXECUTIVE SERVICES

Civil Service Commission.—Harry B. Mitchell, President; George R. Wales, Mrs. Lucille F. McMillin.

Interstate Commerce Commission.—Patrick J. Farrell, Chairman; Balthasar H. Meyer, Clyde B. Aitchison, Joseph B. Eastman, Frank McManamy, Ezra Brainerd, Jr., Claude R. Porter, William E. Lee, Hugh M. Tate, Charles D. Mahaffie, Carroll Miller.

United States Employees' Compensation Commission.—Mrs. Jewell W. Swoffard, Chairman; Harry Bassett, John M. Morin.

General Accounting Office.—J. R. McCarl, Comptroller General of the United States.

United States Railroad Administration. — Henry Morgenthau, Jr., Secretary of the Treasury, Director General.

Federal Reserve Board. — Henry Morgenthau, Jr., Chairman; J. F. T. O'Connor, Comptroller of the Treasury; Eugene R. Black, Governor; Adolph C. Miller, Charles S. Hamlin, George R. James, J. J. Thomas, M. S. Szymczak.

Federal Trade Commission. — Charles H. March, Chairman; Garland S. Ferguson, Jr., William E. Humphrey, Ewin L. Davis, Otis B. Johnson, Secretary.

United States Tariff Commission.—Robert L. O'Brien, Chairman; Thomas Walker Page, Vice-Chairman; John Lee Coulter, Edgar B. Brossard, James W. Collier, Raymond B. Stevens, Sidney Morgan, Secretary.

United States Board of Tax Appeals.—Logan Morris, Chairman.

Federal Power Commission. — Frank R. McNinch, Chairman; Basil

Manley, Vice-Chairman; Herbert J. Drane, Claude L. Draper, George O. Smith.

Federal Oil Conservation Board.—The Secretary of the Interior, Chairman; the Secretary of War, the Secretary of the Navy, the Secretary of Commerce.

Federal Radio Commission.—Chairman, Eugene O. Sykes.

Veterans' Administration.—Brigadier General Frank T. Hines, Administrator; Edward W. Morgan, Director of Pensions; Colonel C. W. Wadsworth, Director of the Bureau of National Homes.

Federal Board for Vocational Education.—J. C. Wright, Director.

United States Board of Mediation.—Samuel E. Winslow, Chairman.

United States Shipping Board.—H. I. Cone, Chairman.

National Advisory Committee for Aeronautics.—Joseph S. Ames, Chairman.

Alien Property Custodian.—Urey Woodson.

Board of Surveys and Maps of the Federal Government.—J. G. Staack, Chairman.

The Commission of Fine Arts.—Charles Moore, Chairman.

Smithsonian Institution.—

Established 1846 under the terms of the will of James Smithson for the "increase and diffusion of knowledge among men." The former aim is accomplished by the promoting of original, scientific research, and the latter by publications and lectures. The affairs of the Institution are managed by a Board of Regents which coöperates with the Government and with National scientific bodies. Under the direction of the Institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological and mineralogical collections belonging to the United States; Bureau of American Ethnology, National Gallery of Art, Freer Gallery of Art, National Zoölogical Park, Astrophysical Observatory, and the Regional Bureau for the United States International Catalogue of Scientific Literatures.

Secretary.—C. G. Abbott.

National Academy of Sciences.—W. W. Campbell, President; Frederick E. Wright, Home Secretary; R. A. Millikan, Foreign Secretary; Isaiah Bowman, Chairman of the National Research Council.

Pan-American Union.—L. S. Rowe, Director General.

United States Geographic Board.—Frank Bond, Chairman.

American National Red Cross.—John Barton Payne, Chairman.

FEDERAL CIVIL SERVICE

By Clinton Rogers Woodruff

Honorary Secretary, National Municipal League

RECOVERY PLAN THREATENED BY SPOILS SYSTEM

The National Civil Service Reform League in the Annual Report of its Council declared that the Administration's program for recovery from the economic morass is seriously threatened by the spoils system, which may prove an insurmountable hurdle to its success. "We are passing through an ordeal," it said, "which taxes to the utmost the wisdom of our law-makers, the ingenuity and judgment of our leaders and the patience of our people. The new administration in every step it takes must meet and overcome this obstacle of the spoils system. The Democratic Party after twelve lean years in the Federal civil service has come back into power." It has enacted a farm relief law setting up a new agency of government with broad miscellaneous functions. It has taken over the operation of the Muscle Shoals development, whereby the U. S. Government has virtually entered into the public utility business; has enacted laws setting up agencies of government to supervise the issuance of new securities by private corporations, to provide Federal aid for unemployment relief to states to regulate loans from the R. F. C. to home owners and to regulate industrial relations in the interest of facilitating interstate commerce and the coöperation of trade groups.

The new Administration, the League said, has turned its back upon the only method of safeguarding these new agencies from maladministration. Without a single exception these agencies thus created have been thrown open to the political spoilsman to do with as he may see fit. The excuse given, when objection has been made to exemption from civil service tests, has been that they are a part of the emergency program and that they may only be temporary in character.

It has been useless to appeal to Congress to eliminate from important legislation ill-advised riders for such exceptions, although various members made their protests against the more brazen exemptions. It has become the habit of Congress, whenever new boards, bureaus or commissions are created, to provide for exemptions from the Civil Service Act. The record of the development of the competitive system in the Federal Government indicates plainly that far more has been accomplished toward such extension through the executive branch than through the Congress. In the past when Congress has made special exceptions from examination to fill public places, it has often been necessary for the executive branches concerned to appeal to the Civil Service Commission for aid in recruiting competent subordinates.

Following the precedent set by Presidents Theodore Roosevelt and Woodrow Wilson, it urged President F. D. Roosevelt to request the administrative heads of the various agencies and bureaus established under the emergency legislation to ignore the exceptions made by act of Congress in the various recovery measures, and to seek ~~the~~ coöperation of the Civil Service Commission in the selection of their staffs. Only in this way will it be possible for the heads of these agencies to be relieved of the backbreaking burden of acting as political referees for the determination of the distribution of spoils. It would be tragic if the recovery program were to be wholly defeated or impeded by the clamor for spoils of office.

During the half-century since the adoption of the Civil Service law the public service has grown tremendously through the many increasing functions undertaken by our various governments. The civil service throughout the country represents an army of more than 3,000,000 persons and calls for an annual expenditure of over $4,000,000,000. One in every 40 persons draws pay from the Federal, state or municipal governments. This huge public payroll represents about one-fifth of the total annual budgets for all governmental activities.

In the opinion of the League the growth in the public service has been out of proportion to the real need. With only nine states and the Federal Government operating under civil service laws, there have been countless opportunities for the political organizations to create patronage. Payrolls are padded to take care of political workers at the expense of the public treasury. Thousands of positions are mere sinecures, and have been created and continued primarily to provide a means for political leaders to pay political debts with public funds. The public service is everywhere cluttered with mediocre, incompetent, inexperienced officials and employes. The American taxpayers are giving the political organizations a subsidy of probably $500,000,000 a year to help them maintain their organization machines through political patronage.

Not since Grover Cleveland's administration has the merit system had to face such a serious challenge to its existence as it faces now upon a change of administration. There is an upheavel not only in the Federal service, but in most of the states where changes of administration have occurred. The demands of the spoilsmen for turning out incumbents and replacing them with their own political workers, regardless of efficiency, will ultimately lead in the future to greater waste, corruption and extravagance.

THE MERIT SYSTEM THROUGHOUT THE COUNTRY

The invasion of Washington by political workers of the victorious party, eager for reward in the form of public offices, has been duplicated in the capital of each of the many states to which Nov. 8, 1932, brought a change in political complexion. For weeks following the election the newspapers were filled with accounts, amusingly yet discouragingly reminiscent of the Eighteen-seventies, of the veritable sieges to which Governors-elect were being subjected by job-seekers. And when the new legislatures convened in January, supporters of the merit system in some of the states where civil service laws are in force found that they were faced with a battle to prevent the emasculation or nullification of those laws.

In Illinois and Wisconsin efforts have been made to repeal the State Civil Service Laws. In Illinois the repeal bill was tabled on second reading by a vote of 21 to 9. Another bill to confine the application of the Civil Service Law to the Department of Public Welfare, fortunately was also disapproved. A bill to abolish the Wisconsin civil service system, initiated in 1905, and long considered one of the best in the country, was introduced but was soon abandoned in favor of another measure which would destroy the substance of the system while retaining its form. Under its provisions, the present personnel board would be abolished and superseded by a civil service commissioner, who would be practically subject to the Governor. He would be given authority to make rules, classify positions and fix salary ranges, and appeals against rulings of the commissioner would be reviewable only by the Governor. No better method of building up a state political machine could easily be devised than by the provisions of this bill.

Two bills making political encroachments on the Milwaukee city and county civil service commissions, by providing that members of the commission must be affiliated with one of the three principal political parties of the state (affiliation to be certified to by the chairmen of the respective county committees), seem destined for passage.

In California the administration's attempt to gain control of the state personnel agency was defeated by the refusal of the legislature to approve the abolition of the division of personnel and organizations, now under the Finance Department, and transfer its functions to the Civil Service Commission under absolute control of the Governor.

State civil service laws were introduced in four states, Arkansas, Louisiana, Pennsylvania and Washington. The Louisiana bill was defeated by a vote of 28 to 10 in the Senate, although it had been recommended for passage by unanimous vote of the Senate Finance Committee. The other three bills died in committee.

In Arkansas a law was enacted directing city councils of all municipalities maintaining police and fire departments, to appoint civil service commissions to have jurisdiction over those departments. A similar law applying to fire departments only has been enacted in West Virginia, and one applying to police departments only has been proposed in Florida.

RECESSION OF THE CIVIL SERVICE

In the opinion of thoughtful observers the trend of public events is that the Civil Service is worse off than it has been for years. The great amount of new legislation, together with innumerable positions exempted from the operation of civil service laws makes it imperative that a new crusade be undertaken when the evils of the rejuvenated spoils system begin to dawn upon the general public. The desire of public officers everywhere to get things done in haste insures a considerable amount of leisure in which to repent. Civil Service was never more neglected and never more necessary. As one long time observer has said, "We are in the midst of paradox, niggardliness with reference to methods that have been tried and have justified themselves accompanied by reckless extravagance toward experimentation of all kinds, however, ill-advised. We can only hope for the best as far as employment is concerned and be perfectly certain that the evils attendant on the return to the Spoils System in such wholesale fashion will bring grief in their train, both to spoilsmen and taxpayers.'' In the opinion of personnel experts the current economic depression and financial stringency of local governments have had a definitely detrimental influence upon constructive personnel administration in government. In addition, the demands for reduction in expenditures, the decrease in turnover, and the large number of applicants for the relatively few positions available have resulted in reduced activities on the part of many of the personnel agencies. The public personnel movement has marked time during the current year and there has been no progress of any great significance.

A state-wide referendum of the Bar Association of Tennessee evoked the following recommendation to the 1933 General Assembly: Very few public officials can be of great service until they have been in office some time. Competent men should be encouraged to devote their talents to the public service. So long as they are competent and honest the tenure of office should not be subject to political caprice. It was found essential in the public interest to apply the civil service system to the government of the United States. It is believed that there should be a corresponding change in Tennessee's laws, making most positions, but not all, of course, subject to civil service.

APPORTIONMENT

In the original civil service law provision was made for apportioning appointments among the states according to population, a practice which was at the time disapproved by the League. The House of Representatives has now resolved on an investigation of the administration of the apportionment rule by the U. S. Civil Service Commission. There is a periodic hue and cry raised in Congress for the strict enforcement of this rule. The District of Columbia, under the apportionment plan, is counted as one of the states. Naturally, the District and the neighboring states of Maryland and Virginia are the largest recruiting ground for employes in the departments at Washington. Whenever a member of Congress becomes aware of the provision of the law and discovers that his state has not filled its quota in the departmental service according to the last decennial census, a protest is raised. Now, when literally hoards of office-seekers are clamoring at the doors of their Representatives asking that their labors during the political campaign be recognized, the Congressmen will seize the opportunity to pin their hopes of satisfying their constituents under the apportionment law. The last time complaint was raised against the Civil Service Commission's administration of the apportionment system was in 1928, when an investigation was conducted into the operation of the rule. The record showed conclusively that there had been no violation of the law and that the Commission had given due regard to the apportionment system.

POSTMASTERSHIPS

The National Civil Service Reform League has observed with growing concern the system established for the appointment of postmasters under the executive order issued by President Harding in 1921, whereby presidential postmasters are selected from among the highest three persons on eligible lists resulting from ''competitive tests'' conducted by the Civil Service Commission in conjunction with the Post Office Department. The selection of one of three from the lists for postmasters inevitably invites the ill-advised practice of acting on the political recommendations of Congressmen and local political committees. The report that Postmaster General Farley will continue this ''traditional practice'' is a matter for great public concern, implying, as it plainly does, that the present Administration looks upon postmasterships as legitimate political party spoils.

port was under consideration in the House, this new provision was brought up on a point of order and a vote called for. After a lengthy protest by Mr. Luce (R.) of Massachusetts, and after some debate, the exemption was approved by a vote of 237 to 133, with 61 not voting. The bill was signed May 12.

The Farm Relief Bill, signed May 12, provided that all employes may be appointed without regard to the provisions of the Civil Service Law.

The Industrial Recovery Bill, likewise, provided that all employes may be appointed without regard to the provisions of the Civil Service Act, including employes under the Public Works Administration.

The Farm Credit Act created 12 Production Credit Corporations and 12 Banks for Coöperatives (to make loans for production and marketing of agricultural products), the directors of which may employ and fix the compensation of subordinates without restriction. The bill passed the Senate June 10 and was almost immediately signed.

The Home Owners' Loan Bill, extending the powers of the old Home Loan Bank Board, exempts employes from the provisions of the civil service law.

The Emergency Railroad Transportation Act, empowers the Federal Coördinator of Transportation to appoint such assistants and agents as he may find necessary with regard to provisions of the Civil Service Law. The bill was signed June 16.

A CIVIL SERVICE LIAISON

The Sirovich Liaison bill, introduced at the 1933 session of Congress, provides for the establishment in the Federal Civil Service Commission of a Board of Appeal consisting of the three Commissioners. This liaison officer shall be independent of the executive departments and independent offices and shall be empowered to hear, investigate, and adjust all differences between employes and their superiors. A right of appeal to the Board of Appeal by the head of the department or the employe concerned is provided. The liaison officer shall coöperate at all times with the Commissioners on important matters, and the Board of Appeal shall take action on appeals from the finding of the liaison officer after the head of the department or the incumbent of the position affected has objected in writing and all persons in interest have been afforded an opportunity to be heard, and their decision shall be final. Appeals of employes shall be without prejudice to them. The liaison officer shall receive a salary of $6,000 per annum and shall be a civil service employe with at least 20 years' service in the classified civil service selected by the Civil Service Commission.

THE FEDERAL CIVIL SERVICE COMMISSION

The President appointed to the U. S. Civil Service Commission Harry B. Mitchell of Montana and Mrs. Lucille Foster McMillin of Tennessee in place of Governor Campbell and Miss Dell. The selection of the new commissioners was dictated in large measure by political considerations. Neither Mrs. McMillin nor Mr. Mitchell had had any particular experience in personnel work. They are both interested, however, in the task assigned to them and fully alive to the great responsibility devolving upon the Commission. The President has retained George B. Wales on the Commission, who had entered the service in the Commission's office in 1892. He was made Chief Examiner in 1908, and in 1919 President Wilson appointed him Commissioner. His extended experience and devotion to the interests of the public service are invaluable to the Commission.

Although fifty years have elapsed since the enactment of the original Federal Civil Service Act, many of the essentials of a well-rounded system of personnel administration are still lacking in the Federal service. No central agency for the management of the personnel is provided; the work is still divided among a number of independent agencies. Promotions within the service continue to be made on no real basis of competition for merit and fitness nor is there any proper scrutiny by the Civil Service

It is not generally known that there are about 840 so-called service postmasters that is, persons who have held positions in the Federal classified civil service and who have been either appointed or transferred to the positions of postmaster. Most of them have served as first, second or third class postmasters for over ten years. In fact, over 10 per cent of them have been serving as postmasters since the Wilson Administration. More than half have been in the Federal service for over fifteen years. It is only fair that such service postmasters who have sought to make the postal service a career, should be retained in the service and the valuable experience gained by them retained for the public benefit. Not to recognize the long service rendered to the Federal Government by these postmasters is virtually to serve notice that the Post Office Department offers no opportunity for a career to the hundreds of thousands in that branch of the Federal Government, regardless of length of faithful, loyal service. The mere legal fiction of a fixed term of four years for postmasters should not be made the excuse for terminating their employment, but on the contrary they should be retained during good behavior and as long as they continue efficient. During the present Administration there have been a number of removals of postmasters before the expiration of their four-year terms, notably in the case of Pittsburgh.

CIVIL SERVICE EXEMPTIONS

Muscle Shoals.—During the 1933 session of Congress beginning March 4, the Muscle Shoals Bill as passed by the House provided that all employes of the corporation to operate the Muscle Shoals properties were to be appointed without regard to the provisions of the Civil Service Law, although the bill carried a section specifying that "in the appointment of officials and the selection of employes for said corporation and in the promotion of any such employes or officials, no political test or qualification shall be permitted or given consideration"; and removal of anyone violating this section was called for. The Senate did not except the employes from civil service requirements, but its conferees agreed to the House provision for exemption, and the bill was signed May 18 with this intact.

The Employment Service Bill as passed by the Senate May 29 provided that all employes of the U. S. Employment Service were to be appointed in accordance with the provisions of the Civil Service Law. This is practically the same bill passed last year but vetoed by the President at the instance of Secretary of Labor Doak. At the hearings held in connection with the bill, it was brought out that the one superiority of this bill over the legislation which created the existing employment service was political acceptability. The bill was amended in the House, however, to except all employes from the provisions of the Civil Service Act, and was signed June 6.

Corporation of Foreign Securities Holders.—In the Senate on May 8 Mr. Johnson of California introduced a new section to the Protection of Investors Bill creating a "Corporation of Foreign Security Holders," which should have power to employ officers and employes without regard to the Civil Service Law. This bill was signed May 27.

The Independent Offices Appropriation Bill gives the President in his discretion authority to retire Federal employers of more than 30 years' service. Reduction of personnel shall be made in accordance with the requirements of state apportionment as well as of efficiency. Heads of departments are permitted to furlough surplus employes for periods not in excess of 90 days during the fiscal year 1934. Compensation was reduced 15 per cent from date of approval of the act until July 1, 1934. It became a law June 5.

Federal aid to states bill, as passed by the House, tacitly provided that the employes appointed to administer the $500,000,000 grant to states should be appointed in accordance with provisions of the Civil Service Law, in that no provision was made to the contrary. The Senate bill specifically so provided. In conference, however, all employes were exempted. When the conference re-

Commission of the payrolls of government employes. The problem of handling such matters as separations affecting the welfare of employes has not been adequately solved, and no practical procedure therefor has been worked out. No personnel system can be considered adequate without these essential elements.

In the economies which will be attempted in the Federal service, there is great danger that the staff of the Commission will suffer unduly. There is constantly need for improving technique of testing applicants for government positions. The Commission has in the past contributed materially to the progress of the technique of examination processes through its valuable research division. It would be false economy to drop this work now when it may be accomplished with a minimum of expense.

THE FOREIGN SERVICE

The National Civil Service Reform League is largely responsible for the enactment of the Rogers Act of 1924 which made possible a career in the U. S. Foreign Service, and through the operation of which 29 men who have risen from the ranks have attained posts as Minister or Ambassador. The Foreign Service has not escaped the pressure put upon all branches of the Federal Government for use as a vehicle for rewarding those who contributed to the Democratic victory in the last election. An examination system set up with such care and found so successful as that for entrance to the lower rank of the diplomatic service and to all grades of the consular service, will undoubtedly be maintained. While a number of excellent appointments in the foreign service have been made, there have been a number of unfortunate changes in the higher ranks.

MERIT SYSTEM IN THE NATIONAL PARK SERVICE

The National Park Service has from its creation in 1916 been kept singularly free from politics. Its executives and staff have been selected on the basis of merit. Secretary of the Interior Ickes, in calling into consultation eminent civic, educational and professional leaders to recommend a director to take the place of Horace M. Albright, resigned, established a worthy precedent in the selection of Arno B. Cammerer, Associate Director of the National Park Service, to succeed Mr. Albright. This has been hailed as a signal victory for a merit appointment, based on the recommendation of the advisory committee. Mr. Cammerer, as chief of the enlarged Service, described in the last Civic Comment, has also been made Vice-Chairman and Executive Officer of the National Capital Park and Planning Commission.

VETERAN PREFERENCE

The National Civil Service Reform League has consistently urged the rescission of the executive order permitting preference to veterans in the Federal service, although as a practical matter some consideration might be accorded disabled veterans by giving them some advantage in original entrance examinations such as was provided by the executive order of 1921. This presidential order granted to disabled veterans additional credit of ten points in Federal Civil Service examinations. The League believes that is the maximum that should prevail in any case.

It would seem unreasonable, however, that thousands of veterans should receive disability compensation from the Federal Government for minor ailments or trivial physical defects (which in no wise handicap them or impair their earning capacity), while at the same time earning from the public agencies—Federal, state or municipal — salaries commensurate with those earned by the average person in private or public enterprise. It is only fair to the taxpayers of the country that such veterans employed by any governmental agency and receiving salaries of $1,500 per year or more, should not be given added compensation from the Federal Government because of minor disabilities incurred in time of war. In exceptional cases where a veteran's earning capacity has been seriously impaired, the Federal Government may properly supplement the salary earned by the veteran with an allowance from the Veterans' Bureau. This can properly be accomplished under proper regulations.

PERSONNEL OF THE JUDICIARY

By William M. Schuyler

Associate Editor, *The American Year Book*

SUPREME COURT OF THE UNITED STATES

Charles Evans Hughes (New York), Chief Justice of the United States, appointed 1930.

Willis Van Devanter (Wyoming), appointed 1910.

James Clark McReynolds (Kentucky), appointed 1914.

Louis Dembitz Brandeis (Kentucky), appointed 1916.

George Sutherland (Utah), appointed 1922.

Pierce Butler (Minnesota), appointed 1923.

Harlan F. Stone (New Hampshire), appointed 1925.

Owen J. Roberts (Pennsylvania), appointed 1930.

Benjamin N. Cardozo (New York), appointed 1932.

Officers of the Supreme Court:

Clerk.—Charles Elmore Cropley.

Deputy Clerks.—Reginald C. Dilli, Hugh W. Barr.

Marshall.—Frank Key Green.

Reporter.—Ernest Knaebel.

CIRCUIT COURT OF APPEALS OF THE UNITED STATES

First Circuit.—Mr. Justice Brandeis; George Hutchins Bingham (New Hampshire), Scott Wilson (Maine), James M. Morton, Jr. (Massachusetts).

Second Circuit.—Mr. Justice Stone; Martin T. Manton (New York), Learned Hand (New York), Thomas W. Swan (Connecticut), Augustus N. Hand (New York), Harrie Brigham Chase (Vermont), Julian W. Mack (New York).

Third Circuit.—Mr. Justice Roberts; Joseph Buffington (Pennsylvania), J. Warren Davis (New Jersey), Victor B. Woolley (Delaware), J. Whitaker Thompson (Pennsylvania).

Fourth Circuit. — Mr. Chief Justice Hughes; John J. Parker (North Carolina), Elliott Northcott (West Virginia), Morris A. Soper (Maryland).

Fifth Circuit.—Mr. Justice Cardozo; Nathan P. Bryan (Florida), Rufus E. Foster (Louisiana), Samuel H. Sibley (Georgia), Joseph C. Hutcheson, Jr. (Texas).

Sixth Circuit.—Mr. Justice McReynolds; Charles H. Moorman (Kentucky), Xenophon Hicks (Tennessee), Smith Hickenlooper (Ohio), Julian W. Mack (New York), Charles C. Simons (Michigan).

Seventh Circuit.—Mr. Justice Van Devanter; Samuel Alschuler (Illinois), Evan A. Evans (Wisconsin), William M. Sparks (Indiana), Louis Fitzhenry (Illinois).

Eighth Circuit.—Mr. Justice Butler; Kimbrough Stone (Missouri), William S. Kenyon (Iowa), John B. Sanborn (Minnesota), Archibald K. Gardner (South Dakota), Joseph W. Woodrough (Nebraska).

Ninth Circuit.—Mr. Justice Sutherland; Curtis D. Wilbur (California), William H. Sawtelle (Arizona), Francis A. Ganecht.

Tenth Circuit.—Mr. Justice Van Devanter; Robert E. Lewis (Colorado), Orie L. Phillips (New Mexico), G. T. McDermott (Kansas).

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

William J. Graham (Illinois), presiding judge, appointed 1924.

Oscar E. Bland (Indiana), appointed 1923.

Charles Sherrod Hatfield (Ohio), appointed 1923.

Finis James Garrett (Tennessee), appointed 1929.

Irvine L. Lenroot (Wisconsin), appointed 1929.

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA

George E. Martin, Chief Justice
Charles H. Robb.
Josiah A. Van Orsdel.
William Hitz.
D. Lawrence Groner.

COURT OF CLAIMS OF THE UNITED STATES

Fenton Whitlock Booth (Illinois), Chief Justice, appointed 1928.

William Raymond Green (Iowa), appointed 1928.

Benjamin H. Littleton (Tennessee), appointed 1929.

Thomas S. Williams (Illinois), appointed 1929.

Richard Smith Whaley (South Carolina), appointed 1930.

SUPREME COURT OF THE DISTRICT OF COLUMBIA

Alfred A. Wheat, Chief Justice.
James M. Proctor.
F. Dickinson Letts.
Daniel W. O'Donoghue.
Jennings Bailey.
Peyton Gordon.
Oscar R. Luhring.
Joseph W. Cox.
Jesse C. Adkins.

UNITED STATES CUSTOMS COURT

William J. Tilson, Presiding judge.
Walter H. Evans.
Charles P. McClelland.
Jerry B. Sullivan.
George Stewart Brown.
Frederick W. Dallinger.
Genevieve R. Cline.
David H. Kincheloe.

UNITED STATES MARSHAL'S OFFICE

United States Marshal.—Edgar C. Snyder.

Chief Deputy Marshal.—Stephen B. Callahan.

UNITED STATES ATTORNEY'S OFFICE

United States Attorney, District of Columbia.—Leo A. Rover.

Assistants.—John W. Fihelly, David A. Hart, Rebekah S. Greathouse, Harold W. Orcutt, William H. Collins, M. Pearl McCall, John B. Williams, Walter M. Shea, Charles B. Murray, William A. Gallagher, Irvin Goldstein, James R. Kirkland, John R. Fitzpatrick, Julian I. Richards, Frank W. Adams, Michael F. Keogh, Wilbert McInerney, Wilbur N. Baughman, John J. Sirica, Alexander H. Bell, Jr., John J. Wilson, John W. Wood, Milford F. Schwartz, Roger Robb.

FEDERAL JUDICIAL PROSECUTIONS AND DECISIONS

By Howard Britton Morris

Instructor, College of the City of New York

Due to the fact that the Annual Report of the United States Attorney General was not released to the public in sufficient time, it has been impossible to secure any figures as to the number of cases brought, number of judgments for the plaintiff, or even to determine which cases the Government has considered important. Further difficulty has been encountered in securing information regarding points of law in particular cases, in as much as other news of national importance obliged the press to devote little space to legal matters, and an important periodical service was entirely suspended for six months. The most important points of law arising from the various recent acts for the National Recovery have not yet undergone legal determination.

CONSTITUTIONALITY OF AN ACT

The proceedings of the Secretary of Agriculture, the Marketing Agreement, and License for Cling Peaches

Canned in the State of California, together with the Agricultural Adjustment Act under which they were executed, are constitutional, and cannot be held invalid on any of the following grounds: (1) improper and invalid delegation of legislative power; (2) violation of the due process clause of the Fifth Amendment; (3) invalid exercise of the Congressional power with regard to regulation of interstate commerce. The important point in this case, aside from the constitutionality of the Agricultural Act, is the interpretation placed on the power of Congress over intra-state commerce in order properly to exercise control over the inter-state commerce. The view was here taken that it is the purpose of the Constitution for Congress to have power not only over purely inter-state commerce, but also any and all trade which by its nature affects the inter-state trade. A further point of law was made by the Court to the effect that the Agricultural Act did not violate the Fifth Amendment, on the ground that the Constitution would not prohibit the enactment of legislation for the economic preservation of the United States, when such prohibition would lead to the ruin of the country. (United States and Henry A. Wallace, Secretary of Agriculture, *v.* Calistan Packers, Inc., D. C., California, Equity 3627-3 S. 2 Oct., 1933.)

FEDERAL TRADE COMMISSION

Public interest justified The Federal Trade Commission in issuing orders to cease and desist from the practice of purchasing flour from grinders and blending the flour thus purchased in order to sell them to the public as the product of the grinding of their own plants. Besides the deception thus perpetrated upon customers who believed that they were purchasing flour actually ground from the wheat by these vendors, such practice on their part constituted unfair competition to competitors who were actually engaged in the process of grinding flour from wheat. In so ruling the Supreme Court reversed the decision of the Circuit Court of Appeals which had held that the orders of the Commission did not appear to be in the public interest. On the other hand, however, the Commission should not have prohibited the use of trade names which included the words "milling company," or similar designations, in as much as these names were of themselves valuable business assets and the highly injurious results of their destruction should have been avoided could the public have been protected by less drastic measures. (Federal Trade Commission *v.* Royal Rolling Mill Co., *et al.*, U. S. Supreme Court, No. 393, 6 Feb., 1933.)

INTERSTATE COMMERCE COMMISSION

In the case of the Interstate Commerce Commission *et al.* *v.* Oregon-Washington Railroad and Navigation Co. *et al.* (U. S. Supreme Court No. 23, 9 Jan., 1933) it was held that it was not the intention of Congress to grant to the Commission the power to compel the investment of sums for the development or service of a region which the carrier did not profess to serve and that, therefore, the defendant was not obliged under Section 1 (21) of the Interstate Commerce Act to extend a line from Crane, Oregon to Crescent Lake, Oregon through 185 miles of practically undeveloped territory. Said Section can be applied to require extension of service only within that area which the carrier normally serves and must not be confused with paragraph 18 of the same Section.

In determining whether the Interstate Commerce Commission can enjoin a transportation company under Section 12 (1) of the Interstate Commerce Act, as amended (49 U.S.C. 12) (1), from the issuants of securities or the assumption of obligations without benefit of an order from the Interstate Commerce Commission, an interurban electric line was held to be within the exception of the Section, paragraph 1, in as much as such freight traffic on the line handled was a purely secondary development which did not interfere with the original purpose of the carrier. The decision, therefore, was in no way contradictory of the essential point of law in the case of Piedmont and Northern Ry. Co. *v.* Interstate Commerce Commission (286 U. S. 299), where the plaintiff was predominantly occupied as a carrier of interchange carload freight. (United States *v.* Chicago, North Shore and Milwaukee R. R. Co.; U. S. Supreme Court, No. 264, 9 Jan., 1933.)

Section 15a (2) is supplemented by Section 13 (4) of the Interstate Commerce Act, and so jointly construed the Commission is empowered to raise the rates on intra-state commerce in order that it may produce its just share of the requisite earnings for maintenance and operation and in order to yield a fair return upon the investment devoted to both interstate and intra-state commerce. Therefore, the Commission was empowered under Sections 13 (3) and 13 (4) to prescribe for intra-state rates on certain commodities increases equal to the increases allowed in interstate rates on the same commodities under the Fifteen Per Cent Case, without inquiring whether such authorized surcharges were just and reasonable nor whether they were required of the carriers. (United States *et al.* *v.* State of Louisianna *et al.* U. S. Supreme Court, No. 17, 6 Nov., 1933. Appealed from U.S.D.C., E.D. Louisianna.)

TAX DECISIONS

Although it was the intention of a man to establish a loss for income tax purposes by the sale in 1926 of corporation stock to his wife, in as much as he received from her a price therefor equal to that obtainable by sale of the stock to a stranger and this price was met from the separate estate of the wife, the husband was, therefore, acting within the law when he deducted for his income tax the difference between the purchase price of the stock in 1916 and the sale price to his wife in 1926. Although the precedent in Massachusetts procedure has held that contracts of an executory nature between husband and wife are enforceable neither in law nor in equity, the Massachusetts statutes provide that a wife may in her own right and entirely apart from her husband acquire and hold personal property, in as much as the Courts of the Commonwealth have not as yet passed on a case involving the validity or invalidity of a completed sale from a man to his wife in which a valuable consideration is involved; the husband in the case at issue was not prevented from legally establishing such a loss. To establish a deductable loss under Section 214 (a) (5) of the Revenue Act of 1926 the transaction must be a bona fide transfer in which the husband has no equitable considerations which would entitle him to recover the stock by an action in equity. (Commissioner of Internal Revenue *v.* Hale; C.C.A. 1, No. 2790, 10 Nov., 1933.) (Wilson, C. J.)

The Statute of Limitations is not applicable to the amendment to a claim for the refund of taxes, which claim failed to state the grounds for the refund when the amendment is a specification of the grounds upon which the claim was brought contingent upon the condition that the original claim has been seasonably filed. (United States *v.* Memphis Cotton Oil Co., U. S. Supreme Court No. 308, 9 Jan., 1933.)

In the case of the United States *v.* Factors and Finance Co. (U. S. Supreme Court, No. 141, 9 Jan., 1933) the privilege of amendment to a claim for tax refund was upheld by the Supreme Court, although "fair opportunity for argument either way" presented itself. In this particular case the claimant left the grounds of challenge open, and had the Bureau of Internal Revenue wished to avoid the issue at law it should have insisted at the outset on a full disclosure of the grievance.

In what the District Court described as the first case in which the criminal responsibility of a non-resident alien under the Internal Revenue Laws was involved, it was upheld that a Federal Court had jurisdiction to inflict punishment upon a citizen of Canada who was a non-resident alien enjoying a gross income of, or in excess of, $5,000 from sources within the United States when he failed to make a proper return and attempted to evade and defeat the provisions of the income tax law for which he was liable, although he had no legal residence or place of business in the United States. (United States *v.* Clayton-Kennedy, D. C., D. Md., No. 16290, 13 Jan., 1933.)

Where a corporation liquidated its assets and distributed the proceeds of this liquidation to the stockholders and a claim in abatement was pending at that time, the individual stockholder was responsible for an additional tax assessed against the corporation for that year during which the liquidation and distribution took place under Section 250 (d) of the Revenue Act of 1921. (United States *v.* Pfaffinger, C.C.A.9, No. 6964, 8 Sept., 1933.) (Sawtelle, C.J.)

CONSPIRACY

The meaning of Section 37 of the Criminal Code (18 U.S.C.A. 88) is such that a conspiracy to "defraud the United States in any manner or for any purpose" need not be applied merely to any attempt to cheat the government of money or property, but may be also applied to any deliberate obstruction of any lawful governmental action. (United States *v.* Satak(?) *et al.*, D.C.M.D. Pa., No. 7954, 8 Feb., 1933.) In this particular case the conspiracy was to prevent the deportation of certain aliens.

WAR LOSSES

The case of Wilbur, Secretary of the Interior, *v.* Chestatee Pyrites and Chemical Corp., United States *ex rel.* (U. S. Supreme Court No. 335, 16 Jan., 1933), involved question of fact and not of law, and the error of the Secretary lay in his refusal to allow the item covering the purchase price of machinery and equipment for the corporation on the ground that as a matter of law the claimant was not entitled thereto.

When the Government requisitioned certain vessels it entered into a contract with the mortgagee and the owners of the ships that it should transport to their destinations the cargoes ~~which~~ the ships were carrying at the time of their requisition and should deduct from the otherwise just compensation therefor the cost of such transportation. If the just compensation for requisition had exceeded the debt to the Government the excess was to be applied to the payment of mortgages and liens, but, on the other hand, that the Government should enjoy a superior lien upon the ships should the amount due the Government for transportation of cargo exceed the compensation for requisition. Therefore, the mortgagee was at most entitled to a reduction of the Government's prior lien by that amount expended by him for repairs for damages to the vessels incurred while in government service. (United States *v.* Acme Operating Corp., Liberty Trust Co., Intervenor, U. S. Supreme Court No. 319, 6 Feb., 1933.)

The purpose of Congress in the Act of 1930 by which the amended World War Veterans' Act of 1924 was further amended was to permit the veteran to assert his right to relief which had accrued to him during the life of his original war risk policy and that he should not be deprived thereof because of the requirement of Section 307 that the original policy or converted policy be surrendered, which was impossible by virtue of the fact that an ordinary life policy had been taken out in its place. (United States *v.* Arzner, U. S. Supreme Court No. 191, 9 Jan., 1933.)

Whereas the burden of proof usually rests upon one asserting death at a particular time in a case of war risk insurance in the case of a disappearance where no actual or positive or final proof can be made it then becomes a matter for the court to determine if the evidence be sufficient to establish an inference of death and for a jury, the evidence being sufficient, to determine the time of death. (United States *v.* Hayman, *et al.*, C.C.A. 5, No. 6443, 12 Dec., 1932.)

INDIAN LANDS

A Kickapoo Indian who alienated land acquired by descent could not validly make such alienation inasmuch as the Act of June 21, 1906 (34 stat. 3225, 363), which removed restrictions upon lands acquired by the Kickapoo Indians by allotment, said Indians being at the time of the passage of the Act or thereafter nonresidents of the United States, does not apply. (United States *v.* F. H. Reily, U. S. Supreme Court No. 31, 6 Nov., 1933. On writ of certiorari to C.C.A. 9.)

CUSTOMS

The purpose of the Coast Guard (before the passage of the 21st Amendment) was to discover violators of the National Prohibition Act and not violaters of the Tariff Act. In the first instance of the seizure of a vessel the Government could have elected to claim forfeiture under either act, but as the Government elected to bring the case to trial as a violation of the Prohibition Act and the evidence was suppressed because the ship wa searched illegally, for want of prob able cause, the Government canno then claim forfeiture under the Tari Act (46 U.S.C. 325) where probab cause is not necessary as a basis fo search. (United States *v.* America Oil Screw, Elizabeth S., etc., D. C E.D.N.Y., No. C-2910, Jan. 16, 1933.

ALIENS

The fact that a penalty was impose upon the master of a ship for hi failure to detain an alien seaman unaffected by the consideration of it imposition by the Commissioner Ger eral of Immigration instead of th Secretary of Labor, the bond execute by the master remaining valid. (Unite States *v.* Indemnity Company of Nort America, Inc., D.C.,S.D. Ala., La No. 984, 25 Sept., 1933 [Ervin, J.]

GOVERNMENT BY ABBREVIATION

By William M. Schuyler

Associate Editor, *The American Year Book*

INITIALLING THE NEW DEAL

As a curious manifestation of certain phenomena of democratic government and as a practical aid to the readers of THE AMERICAN YEAR BOOK, it would seem desirable to present a compilation of those governmental agencies which have become rather better known by initials than by their official designations. The present Administration at Washington came into functional being in March with the prestige attaching to wide popular approval of the New Deal. The governmental agencies referred to above were those bodies which were created to carry out the national program of recovery and the few which were already in existence and were utilized to the same end.

The following list comprises the principal agencies only and may be regarded as practically complete to the close of the year 1933. Since there were frequent additions to the list through the year, it is probable that the year 1934 will see further additions. Nor does the followin list include all of the sub-division of the main agencies to which th contagion of initialling has spread. As it stands, however, this list should answer most of the purposes of thos readers who keep abreast of the rap idly developing news of the day.

AAA—Agricultural Adjustmen Administration
CAB—Consumers Advisory Board
CC—Consumers Council
CCC—Commodity Credit Corporation
CSB—Central Statistical Board
CWA—Civil Works Administratio
ECPC—Executive Commercial Policy Committee
EHFA—Electrical Home and Farm Authority
FACA—Federal Alcohol Control Administration
FCA—Farm Credit Administration
FCT—Office of Federal Coördinator of Transportation
FDIC—Federal Deposit Insurance Corporation

FEC—Federal Emergency Housing Corporation
FERA—Federal Emergency Relief Administration
FHLBB—Federal Home Loan Bank Board
FSRC—Federal Surplus Relief Corporation
GSC—Grain Stabilization Corporation
HOLC—Home Owners' Loan Corporation
IAB—Industrial Advisory Board
IBRT—Interdepartmental Board on Reciprocal Treaties
ICC—Interstate Commerce Commission
ITPC—Interdepartmental Trade Policy Committee
LAB—Labor Advisory Board
NCB—National Compliance Board
NEC—National Emergency Council
NIRA—National Industrial Recovery Act
NIRB—National Industrial Recovery Board
NLB—National Labor Board
NPB—National Planning Board
NRA—National Recovery Administration
PAB—Petroleum Administrative Board
PEC—The President's Executive Council
PRA—Presidential Re-employment Agreements
PWA—Public Works Administration
PWEHC—Public Works Emergency Housing Corporation
RFC—Reconstruction Finance Corporation
SAB—Science Advisory Board
SBPW—Special Board of Public Works
SRB—State Recovery Board
TCFT—Temporary Committee on Foreign Trade
TVA—Tennessee Valley Authority

CHRONOLOGY OF THE NATIONAL GOVERNMENT

(From *The New York Times,* December 31, 1933)

JANUARY

an. 12—The House passes the ''Jones Parity Plan,'' introduced by its Agricultural Committee on Jan. 3, giving conditional bonus to wheat, cotton, hog, tobacco, rice, peanut and butterfat producers.

an. 17—The Senate passes the Philippine Independence Bill, which later is rejected by the Philippine Legislature as too protracted.

an. 25—The Glass Bill regulating Federal Reserve Banks passed by Senate.

an. 26—The Senate adopts the Harrison resolution placing relief finances in hands of Finance Committee before which testimony of experts may be heard as basis for action.

an. 28—The House passes bill reducing Federal expense of maintaining prohibition.

an. 30—The House extends the Glass-Steagall Credit Expansion Act to March 3, 1934; extends Ways and Means Committee measure of tax on gasoline till June 30, 1934.

FEBRUARY

Feb. 2—An appropriation of $966,838,634 for the veterans' administration is approved by the House, bringing the ''Independent Office Bill'' up to the huge figure of $1,000,192,195, almost without debate.

Feb. 7—In an amendment to the $941,000,000 appropriation bill for the Postoffice and the Treasury the Senate gives the next President drastic powers of administrative reorganization.

Feb. 16 and Feb. 20—The Senate with a vote of 63 to 23, and the House with a vote of 289 to 121, adopt a Senate resolution which formulates the XXI Amendment to the Constitution: Section 1 repeals the XVIII Amendment; 2, upholds the liquor laws of the various states; 3, declares the measure inoperative unless ratified by thirty-six states within seven years.

Feb. 20—The House adopts the Senate resolution for a repeal of the Eighteenth Amendment.

MARCH

March 2—In a nomination equivalent to election, House Democrats designate Henry Thomas Rainey as Speaker of the next House.

Died, Senator Thomas J. Walsh, Attorney General designate, conducted prosecution, Teapot Dome oil case in Senate.

March 9—The seventy-third Congress with a Senate composed of 59 Democrats, 36 Republicans and 1 Farmer-Laborite, and a House with 313 Democrats, 117 Republicans, and 5 Farmer-Labor members, convenes in special session, and immediately puts through the President's emergency banking measure in five sections: The President is placed in control of Federal Reserve Banks, national credit and currency, and all previous emergency decrees are confirmed, and hoarding is made an offense; any national bank not considered perfectly solvent comes under the control of the Controller of the Currency; national banks are permitted to issue stock or obtain loans from the Reconstruction Finance Corporation; a new currency issue secured by government obligations acceptable to the Federal Reserve is authorized, and loans may be made by the Reserve Banks with these obligations as security; the fifth section provides funds for the execution of the law.

March 10—A special message to Congress urges a balancing of the budget as the first step toward securing national credit, as otherwise the total deficit will amount to $5,000,000,000 by June 30, 1934.

March 11—With sixty-nine Republicans voting with the Democrats the House by a vote of 266 to 138, passes the President's bill saving
$500,000,000 from Federal salar
and veterans' pensions.

March 21—The House passes t
Senate bill of March 16 restricti
interstate traffic in 3.2 per ce
beer by re-enacting parts of t
Webb-Kenyon Act of 1913.

March 22—In conformity with t
President's message of March
the House passes his bill empow
ing the Secretary of Agricultu
to reduce production and regula
transactions in nine products.

March 28—Under the act of Mar
20 the President reduces the p
of 1,000,000 government employ
on report from the Departme
of Labor that the cost of livi
had dropped 21.7 per cent sin
1930.

March 28-29—Senate and House pa
the Forestation Work Relief Bi
to be signed by the Presiden
March 31.

March 30—By a vote of 153 to 5
the House passes the Medicin
Liquor Bill adopted in ten minut
by the Senate the day before, an
signed by the President, March 3

APRIL

April 6—By a vote of 53 to 30 th
Senate passes the Black Thirt
hour Week Bill to conform wi
the President's bill passed by th
House on March 22.

April 17—In the Senate an amen
ment to the Farm Mortgage Bi
passed by the House, 387 to 1
on April 13, is offered by Senat
Wheeler of Montana providing f
the free coinage of silver at th
old Bryan ratio of 16 to 1; it
defeated by only 10 votes, and th
bill is passed on April 28 by 64 t
20.

April 20—Senator Thomas, at the b
hest of the President, introduce
another amendment to the Far
Mortgage Bill to control inflation
it is passed by the Senate, 64 t
20, April 28, and the amendmen
is accepted by the House, 307 t
86, May 3, and goes to a confe
ence of both houses. Then minu
the Senate's "cost of productio
guarantee," the bill is passed b
that body, May 10, 48 to 33, an

is signed by the President two days later.

pril 25-May 3—House and Senate pass the Norris Muscle Shoals bill.

pril 28—The House approves President Roosevelt's plan for legislating in favor of small-home owners.

MAY

ay 4—The Senate passes an amendment to the Reconstruction Finance Corporation Act of 1932 prohibiting a corporation from receiving a loan when a paid official, director, or employe gets more than $17,500 a year.

ay 5-8—House and Senate pass bills protecting investors in interstate trafficking in securities by having the Federal Trade Commission register such securities.

JUNE

ne 9—A Senate-House committee adjusts differences in regard to the railroad relief bills and the suggestion of the President to create the office of Federal Coordinator of Transportation is adopted. Similar differences in regard to small homes are settled and a Home Owners Loan Corporation is established with a capital of $200,000,000 for the benefit of mortgaged homes valued not higher than $20,000.

ne 13—Both houses approve the conference report on the Glass Steagall Banking Reform Bill. Both houses also agree on the Industrial Recovery Bill, as advised by the President: the first section allowing the President to coöperate with industrial organizations in determining output and employment; the second provides for a $3,300,000,000 program of coordination for public works construction, with General Hugh S. Johnson as Industrial Administrator and Colonel George R. Spaulding as Public Works Administrator. Money to start the foregoing program is voted in the fourth deficiency bill by the Senate, which bill s sent to conference with a slightly different House bill.

ne 14—Both houses add in midnight session $100,000,000 to the veteran item in the Independent Offices Appropriation Bill.

June 15—Congress adjourns till Jan. 3, 1934.

JULY

July 13—A super-Cabinet made up of the regular Cabinet and the heads of the various recovery administrations organized by the President on July 11, with the title Executive's Cabinet Advisory Board, gets to work by dividing the country into ten zones, each with a key city for relief and recovery.

July 18—Died: Gilbert N. Haugen, thirty-four years Congressman from Ohio, framer McNary-Haugen farm-relief measure.

SEPTEMBER

Sept. 2—Secretary Ickes announces oil quota, based on an aggregate daily consumption of 2,409,700 barrels of crude oil.

Sept. 28—Died: James William Collier, Congressman from Mississippi since 1909.

OCTOBER

Oct. 22—In a radio address the President announces his plan to buy gold so as to depreciate the value of the dollar and thus raise the value of commodities, which would wipe out unemployment in agriculture and industry, and make possible the payment of public and private debts nearly at the price level at which they had been incurred.

Oct. 23—Died: William Nuckles Doak, president of Brotherhood of Railway Trainmen, Secretary of Labor under President Hoover.

NOVEMBER

Nov. 8—The executive formation of a Civil Works Administration with a credit of $400,000,000 is announced, to be operated by Harry L. Hopkins, Federal Emergency Relief Administrator, for the purpose of transferring about 4,000,000 receivers of doles to self-sustaining work.

Nov. 17—Henry Morgenthau, Jr., becomes Acting Secretary of the Treasury.

Nov. 21—Professor O. M. Sprague resigns as financial ass tant to the Treasury.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia, Pa.
American Bar Assn., 1140 N. Dearborn Street, Chicago, Ill.
American Political Science Assn., Angell Hall, University of Michigan, Ann Arbor, Mich.
Commercial Law League of America, 111 W. Monroe St., Chicago, Ill.
Honest Ballot Assn., Inc., 70 Pine Street, New York City.
League for Political Education, 1 West 43rd St., New York City.
National Assn. of Legal Aid O ganizations, School of Law, Du University, Durham, N. C.
National Civil Service Refor League, 519 Fifth Ave., New Yo City.
National Institute of Public A ministration, 302 E. 35th Stree New York City.

DIVISION IV

STATE GOVERNMENT

STATE ADMINISTRATION

By John M. Mathews

Professor, University of Illinois

THE STATES AND THE DEPRESSION

Governmental activities and organi- tion in the United States have been eatly influenced by the prolonged onomic depression, and in this re- ect the states are no exception. ate finances were seriously affected, st, by the drying up of the usual urces of revenue and, secondly, by e greatly increased financial needs. he difficulty of collecting the gen- al property tax led many states to ek other sources of revenue. Among ese were the income tax and the les tax. In Illinois, the income tax w was declared unconstitutional as as also the first sales tax law, but e latter law was subsequently re- acted in revised form. The general tail sales tax is objectionable in at it is not levied in proportion to ility, but when a state is desper- ely in need of revenue, this is a inor consideration.

Since the ability of property own- s to pay taxes decreased, associa- ns of tax-payers were organized in any states and localities in order to ht for governmental economy, and some localities tax-payers strikes re started. Governments in many tions of the country found them- lves under the necessity of issuing x anticipation warrants, and selling em to banks or paying salaries in at form. In many instances bankers fused to accept such warrants un- s certain governmental economies were introduced. Although, undoubtedly, waste, extravagance and unnecessary expenditures were to be found in some phases of state government, a blind and indiscriminate demand for economy is likely to lead to the curtailment of essential services.

Governor Pinchot of Pennsylvania declared publicly that the legislature of that state "is not interested in the slightest in real governmental economy and purposes only to use economy as a measure behind which it can tear down the vital functions of the state" (*National Municipal Review*, June, 1933). In order to combat such tendencies a counter movement was started for constructive economy in government.

THE GOVERNOR AND STATE OFFICERS

The increased activities of state government in meeting the emergency produced by the economic crisis has placed added responsibilities upon the governor. In some instances he has acted as coordinating agent between the state and the National Government. Regular legislative sessions were also held in 1933 in most states and numerous special sessions were also called at which the governor took the lead in recommending measures to deal with the emergency. Special sessions are usually limited by the state constitution to legislative measures included in the governor's call for the session. When, however, a statute passed by the legislature of Texas was attacked on the ground that it did not come within the scope of the governor's call, the court declined to consider this question, since the statute was regular on its face and had been approved by the governor. (Jackson *v.* Walker, 49 S. W. [2d] 693). This decision, however, does not follow the usual rule.

In Illinois the governor advocated and secured the repeal of the *quo warranto* law passed during the administration of former Governor Small. The repeal of the law renders the governor and other state officers subject to ouster by writ of *quo warranto.*

In Kansas it was held that temporary absence of the governor from the state, even though not on official business, did not constitute such "disability" of that officer as to enable the lieutenant-governor to assume the governor's powers and make an appointment to office. (Markham *v.* Cornell, 18 P [2d] 158).

In December, Governor Lehman of New York appointed a Moreland Act commissioner to make an investigation of the state insurance department.

STATE ADMINISTRATIVE REORGANIZATION

The movement for the reorganization of the state administration in the interests of efficiency and economy has been accentuated by the economic crisis facing the states. In states where such reorganization has not yet been adopted, governors in their messages to the legislature are recommending that action to this end taken. Commissions and other age cies appointed in some states to i vestigate the present ineffective a wasteful organization of the state a ministration are making reports e bodying their recommendations f reorganization. These plans usual provide for an increase in the pow and influence of the governor.

An example of this was the reo ganization effected in Indiana throug a law enacted in February, known a the "executive-administrative" ac It consolidates the state administr tive activities into eight department under the control of the governor. H is empowered to assign or transfe any existing state function to any o the eight departments. The distinctiv and novel feature of the reorganiza tion, however, is that it attempts t overcome the disintegration of the ad ministration produced through th constitutional elective officers by put ting their departments under boards of which the governor, the electiv officer, and one other officer, such a the lieutenant-governor, are members This plan gives the governor greate control over the state administratio than he has in any other state.

Another noteworthy reorganizatio was that which went into effect i Colorado through the enactment b the legislature of the "Administrative Code of 1933." It abolishes about twenty-five boards and commissions and consolidates the administration into six departments under the six elective state officers, headed by the governor.

NATIONAL AND INTERSTATE RELATIONS OF STATES

By John M. Mathews

Professor, University of Illinois

FEDERAL CONSTITUTIONAL AMENDMENTS

Twentieth Amendment.—The year 1933 showed unusual activity in the adoption of amendments to the Federal Constitution. Missouri became the thirty-sixth state to ratify the Twentieth or Norris Amendment, and it went into effect Oct. 15. It abolishes the "lame duck" session of Congress, and changes to January the date of the inauguration of the President and Vice President and the meeting of Congress in regular session.

Prohibition Repeal.—Utah became

The thirty-sixth state to ratify the Twenty-first Amendment, which went into effect Dec. 5. It repeals the Eighteenth or Prohibition Amendment, and brings back the legal situation existing before the adoption of the Prohibition Amendment, except that importation of intoxicating liquors into dry states is prohibited. The Twenty-first Amendment was unique in that it was ratified by state conventions instead of state legislatures. It went through in such unexpectedly rapid fashion that, when repeal came, many states were caught unprepared and without laws for the regulation of the liquor traffic. In some states commissions appointed to investigate and report on methods of control were still struggling with the problem. The Twenty-first Amendment, instead of solving the liquor question, has merely thrown it back upon the states.

Proposed Child Labor Amendment.—The proposed child labor amendment, which was submitted by Congress to the states several years ago, seemed for a while doomed to failure. Recently, however, interest in it has revived and the movement for its ratification is being pushed. In December Maine became the nineteenth state to ratify it. It would authorize Congress to limit, regulate, and prohibit the labor of persons under eighteen years of age. In view of the large number of adults out of work, the employment of children of immature years seems more unwise than ever.

NATIONAL AID TO STATES

The effect of the economic depression upon the states was to reduce their income through greatly increased tax delinquencies while, at the same time, the need was felt for a very considerable expansion of expenditures, especially for unemployment relief. Caught in this emergency, most of the states found it impossible to increase the number and productivity of taxes sufficiently to provide such relief, while the attitude of investors toward the credit of the states rendered borrowing on such credit in most instances impracticable. In this situation even the largest and wealthiest of the states turned to the National Government for assistance.

During the early period of the depression, a strong feeling developed that the National Government should retrench and eliminate unnecessary expenditures. This had the effect of reducing the amounts appropriated by Congress in the form of grants-in-aid to the states. Later, when the need for unemployment relief all over the country became greater, the tendency of the National Government was reversed and large grants were made to the states and local governments for this purpose. After the advent of the Roosevelt Administration, ordinary expenditures were reduced and the ordinary budget was balanced, but the extraordinary budget was expanded enormously in order to provide loans and grants to the states and local governments. This was made possible through borrowing on the credit of the National Government, which was still good.

THE NEW DEAL AND THE STATES

Two phases of the "New Deal" under President Roosevelt as it relates to the states may be mentioned. These are the Federal Emergency Relief Administration (FERA) and the Public Works Administration (PWA). The FERA was set up under an act passed by Congress in May. Unlike the theory of the Hoover Administration, it recognized that the problem of local relief was too huge to be adequately dealt with by the local governments or even by the states. Half a billion dollars was appropriated in order to coöperate with the states in dealing with the relief problem. Each state was entitled to receive a Federal grant equal to one-third of the amount spent for relief by such state and its subdivisions. Applications for Federal grants were to be made by the state governors with information as to the extent of the need and as to what was being done by the state to meet it. Governors of states receiving grants were required to make monthly reports of disbursements to the FERA.

PUBLIC WORKS ADMINISTRATION

It was realized, however, that if possible work should be furnished rather than a dole. Consequently, in June Congress passed the National Industrial Recovery Act, Title II of which set up the PWA and authorized the President, through PWA, to make grants to states and municipalities for the carrying out of highway construction, slum-clearance and other projects, provided such grant does not exceed thirty per cent of the cost of the labor and materials involved. Specifically, $400,000,000 was allotted to the highway departments of the states for construction of highways, bridges, the elimination of grade crossings, etc., without requiring that such funds should be matched by the state. This was to enable the states to proceed with the emergency construction of the Federal aid highway systems and extensions thereof, and no constitutional or legal limitations upon the power of the state to incur indebtedness was to prevent acceptance of such Federal grant. When, however, after several months, it appeared that the public works program was not moving forward fast enough to afford relief during the winter for the millions still unemployed, the Civil Works Administration (CWA) was set up by the Roosevelt Administration in order to furnish work at once and without red tape on local projects. In carrying out all these projects, the Federal Administration utilized states and local officers as far as possible, with the permission of the state and local governments.

FEDERAL AND STATE TAXATION

In order to finance the increase interest charges on the Nationa debt incurred in carrying out th program of the NRA, the Nationa Government was under the necessit of levying taxes on objects, some o which, such as the sale of gasoline were already taxed by the states Even before the coming of the NRA the problem of overlapping and conflicting Federal and state taxation had become acute. In order to study this problem, the first interstate legislative assembly met in Washington in February at the call of the American Legislators' Association with more than thirty states represented. The president of that association was authorized to appoint a permanent interstate commission on conflicting taxation. This commission is composed of fifteen legislators assisted by an advisory group of tax experts. It may serve as a model for dealing with other problems of common concern between the National Government and the states.

LAKE MICHIGAN WATER DIVERSION

As indicated in THE AMERICAN YEAR BOOK for 1932, the Supreme Court of the United States had limited the amount of water that may be withdrawn from Lake Michigan by the Chicago Sanitary District, leaving that body under the necessity of constructing new sewerage works by 1938, but on account of the financial stringency, the District was unable to proceed with such construction. In 1933 the Court maintained its previous position and declined to modify its order. The financial embarrassment of the District was relieved by a Federal grant to it of funds for the construction of the sewerage plant as a public works project.

STATE CONSTITUTIONS, INITIATIVES AND REFERENDA

By Walter Sandelius

Associate Professor, University of Kansas

GENERAL

During 1933, apart from the question of national prohibition, a total of 78 propositions were voted upon by the electorates of 15 states. This unusually large number—few elections being normally held during the odd years—was doubtless due to the severity of the times added to the fact that in most states elections were in any event to be held in connection with ratification of the Twenty-first Amendment. Among the 78 questions, 56 were constitutional amendments, of which 41 were adopted, 15 defeated. Four of the amendments were introduced by popular initiative and all were adopted. Of the remaining 22 proposals, 11 were referred by the legislature and 11 were referred on petition or directly initiated by the people. Ten of the 22 propositions were adopted, 11 were defeated, and one was stated to allow only a positive, alternative choice.

PROHIBITION

Ratification of the Twenty-first Amendment amounted actually, though not technically, to a national referendum. Of the country's population of somewhat over 125,000,000, repeal was favored by voters representing more than seven-eighths of this total and by a ratio of almost three to one. Wyoming and Nevada were the only states to ratify through conventions that were not chosen by popular vote. Only North Carolina and South Carolina rejected repeal. With more than the necessary number of states voting to ratify, the following had held their conventions in time to authorize the repeal proclamation which was issued on Dec. 5: Arizona, Alabama, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin and Wyoming.

In Missouri and Ohio the drys tried, before the election dates, to take advantage of the referendum provisions of the state constitutions by circulating petitions to refer to the people the legislative measures which create the state ratifying conventions with their incidental elections, but these attempts were set at nought by the courts.

Prohibition as required by state constitutions was repealed in Ohio, "the cradle of prohibition," and in Oregon, Utah, and New Mexico. Texas amended her constitution to provide that vinous or malt liquors of not more than 3.2 per cent alcoholic content by weight shall not be prohibited. Yet Texas must be counted among the 11 states left by the repeal votes at the end of the year with constitutional prohibition of their own—Florida, Idaho, Nebraska, South Dakota, West Virginia, Wyoming, Kansas, Kentucky, Maine, Oklahoma, and Texas. Many of the states to date have adopted some form of liquor control, a few with the aid of popular referendum.

ECONOMIC RELIEF

Unemployment Aid. — Texas and California adopted and Maine defeated constitutional amendments to give legislative authorization for the issuance of bonds in order to provide unemployment aid. In either Texas or California the issue must not exceed $20,000,000. Bond issues by statutory provision for the use of unemployment relief were referred to the people and approved in Rhode Island to an amount not to exceed $3,000,000, in New Jersey to the amount of $5,000,000 and in New York to the amount of $60,000,000.

Pensions. — The constitution of Pennsylvania was amended to permit legislative appropriation for pensions to blind persons 21 years of age or upward. Voters of Ohio approved an initiative petition providing for state old age pensions under limitations such that no one benefiting under this system will have an income of more than $25 per month.

Expense Retrenchment. — Economic relief of the taxpayer is represented by an amendment to the constitution of Alabama temporarily suspending all provisions of the constitution which restrict the legislature from decreasing the compensation of any holder of public or civil office of whatever kind, whether elective or appointive, whether of the state, the county or the municipality. The same motive appears in an act adopted by referendum in New Jersey reducing from $83,000,000 to $58,000,000 the amount of debt authorized for highway improvements.

Relief to local government financial resources as well as to taxpayers appears in two acts approved by the voters of New Jersey, the one repealing the authority of the state to create a debt of $7,000,000 for the purpose of conserving and protecting the potable waters of the state, the other authorizing a debt of the same amount for aid to school districts mainly for the payment of teachers' salaries.

TAXATION

Alabama.—With regard to taxation several measures of interest were submitted to popular vote. A constitutional amendment was adopted authorizing the legislature to levy an income tax not to exceed 3 per cent of the income in the case of corporations, nor otherwise 5 per cent. This tax, if levied, must include salaries and other compensation of state, county, and municipal employees on the same basis as that on which other persons are thus taxed.

California.—Of the several matters voted upon in the California elections of July, not so live an issue as the question of repeal or as a certain race track wagering bill but perhaps equally significant, was a constitutional amendment considered by some to have laid important ground work for a revision of California's system of taxation. Besides limiting state appropriations and until 1935 the yearly expenditures of local subdivisions, the chief feature of the new plan might be said to be that it permits the transfer of public utilities non-operating properties to local assessment rolls for municipal purposes, so that such property is no longer, as heretofore, subject only to state taxation. Utility interests opposed this change; school men of California greatly favored it. In return for this concession the legislature is relieved of certain restrictions previously imposed by the constitution. An amendment to exempt non-profit educational institutions from taxation was rejected.

Kentucky.—The electorate of Kentucky rejected an amendment to the constitution authorizing the General Assembly to exempt from taxation for state purposes real estate or other tangible, personal property.

Maine.—A direct initiative bill which if adopted would have required public service corporations to pay, in addition to other taxes, an excise tax for the privilege of exercising its franchises in the state, was defeated. Another bill, also proposed by direct popular initiative and aimed to fix a low rate tax on intangible personal property, failed of approval.

New Mexico. — A constitutional amendment was adopted to provide, with certain exceptions, a property tax maximum of 20 mills.

Ohio.—An amendment, by initiative petition, lowering the maximum rate of property tax from 1½ per cent to 1 per cent was adopted in face of an estimate by the Ohio Tax Commission that this amendment would wipe out $49,000,000 of existing tax revenues.

North Dakota.—An act submitted by referendum petition imposing a gross sales tax and intended mainly for the support of schools was thought to be only another tax and roundly defeated.

Oregon.—A sales tax, urged by the Governor of Oregon in his plea to abolish the general property tax, was referred by the legislature to the people and decisively rejected. An oleomargarine tax, supported by dairying interests, on petition was submitted to referendum and defeated.

SOLDIERS' AND SAILORS' PRIVILEGES

The constitution of Pennsylvania was amended to allow the issuance of bonds to the extent of $50,000,000 to pay compensation to certain veterans of the Spanish American War, the China Relief Expedition, the Philippine War, and the World War. Oregon, however, amended its constitution to disallow further payment by the state of cash bonuses, and to provide that no bonus loans may be made after June 30, 1938.

New York voters refused to endorse a constitutional amendment to extend the preference in civil service appointments of soldiers and sailors to those who at the time of their entrance into the military or naval service of the United States were residents but not citizens of the state of New York.

WATER POWER

A highly significant referendum was held in California in December with the result of approving an act by the state legislature, much opposed by power interests, authorizing the development and conservation of natural resources of the state under the so-called Central Valley Water Project. This project proposes to store, control and distribute the waters of California's two principal rivers, Sacramento and San Joaquin, insuring the agricultural future of the state, providing for the water requirements of many important industrial centers, and especially, diminishing the cost of electricity to home-owners and farmers. This enterprize was declared by the Board of Engineers for Rivers and Harbors of the U. S. War Department to be sound, practical and of great economic value to the people, and was likewise endorsed by the U. S. Bureau of Reclamation and by other Federal agencies. The act provides for a maximum bond issue of $270,000,000 and for state coöperation with the Federal Government. Oregon, on referendum, rejected a proposal to issue bonds totaling $103,779.45 to provide money for the state power fund.

HOME RULE

A county home rule amendment was adopted for Ohio. This abolishes constitutional provisions requiring uniform county government and the election of all county officers, permits alternative forms of county government optional with voters of any county, and authorizes the municipalities and townships to transfer powers to the county with its consent and to withdraw such powers—these changes all being subject to initiative and referendum. Texas, too, adopted a constitutional amendment permitting home rule to counties having a population of 62,000 or more. On the other hand, Oregon at the polls emphatically defeated a constitutional amendment authorizing voters of any county to adopt the county manager form of government.

JUDICIAL CHANGES

The American voter did not show undue radical tendencies in 1933. Oregon decisively rejected an amendment the purpose of which was to authorize the enactment of law modifying the grand jury system and providing for the prosecution of public offenses by information of the district attorney. The voters of New Mexico rejected an amendment abolishing certain minor courts and otherwise reorganizing the judicial system with a view to better integration of the judicial function. Arizona, however, adopted a constitutional change requiring that judgment of death shall be inflicted by administering lethal gas.

SUFFRAGE QUALIFICATIONS AND ELECTIONS

Pennsylvania adopted an amendment to abolish all tax qualifications for voting. Maine rejected an amendment to authorize the use of voting machines in elections.

MISCELLANEOUS

Among other matters of interest were the following: rejection by the voters of North Dakota of an act, said to have been designed for the purpose of creating jobs for political henchmen, which in any case would have decentralized greatly the control over insolvent bank receiverships; rejection by voters of the same state of an act legalizing the operation at profit of motion picture theatres on Sundays; adoption by Utah of a constitutional amendment relating to a minimum wage for women and minors and to the general welfare of all employees; adoption by Pennsylvania of an amendment eliminating the "long and short haul" applicable to railroad rates; adoption by the same state of an amendment giving the General Assembly unrestricted right to prescribe the nature of investments for trust funds to be made by executors, trustees, guardians and other fiduciaries; adoption by the same state of an amendment to allow county and municipal consolidation as affecting Allegheny county in order to make possible a "greater Pittsburgh"; adoption by the same state of an amendment authorizing a bond issue of $10,000,000 for state acquisition of toll bridges; rejection by Arizona voters of several amendments intended mainly to affect lengthening of terms of office of state and local officers.

CHANGES IN ELECTORAL LAWS

By Charles Kettleborough

Director, Indiana Legislative Bureau

REGISTRATION OR ENROLLMENT

In Indiana a new act was passed requiring and providing for the permanent registration of voters. The former law was repealed in 1927, and no registration has been required since that time. The law of 1933 is being opposed so energetically for economic reasons that Marion County (Indianapolis) has declined to make an appropriation to pay the expenses of enforcing the law, and a court action to mandate the budget authorities to act is imminent. Colorado provided for the registration of physically indisposed voters by the superintendent of the hospital or the attending physician. In certain counties in Georgia, the county board of registrars and the ordinary are authorized to assist the tax collectors in the registration of voters; in Minnesota, certain prescribed cities and villages are authorized to combine with an independent school district for the maintenance of a combined permanent registration system, and in Nevada, each justice of the peace is a deputy registrar of voters, the county clerk is *ex-officio* the registrar in the county seat, and the clerk may appoint deputy registrars if found to be necessary. In Somerset County, Maryland there will be a re-registration of voters in 1934; in all counties of Florida having a population of 10,325 to 10,375, the voters are required to re-register, and in Virginia, the requirement of registration was extended to all cities having a population of 15,000 or more. Illinois provided for an intermediate one-day registration in certain cities four weeks before the election for the purpose of purging and perfecting the registration books, and in cities having a population of over 200,000, voters are authorized to register with the Board of Election Commissioners.

Maryland dispensed with the former requirement of printing and posting the names of registered voters in Baltimore and Baltimore County; Missouri changed the time for the registration in first class cities, and Oregon provided for a method of restoring to the registration records the name of a voter whose name had been removed therefrom because he had failed to vote for two years. Kentucky enacted a new registration law applying to every county in which a city of the first class is located.

CORRUPT PRACTICES

In Arkansas, the amount of money which a candidate may expend between the first and second primary is prescribed and limited by law, and in Pennsylvania, the expense accounts filed by the respective candidates are required to be preserved for a period of two years.

PRIMARIES

In Arkansas no candidate is considered nominated in the regular primary unless he receives a majority of all of the votes cast, and if no candidate for any office receives a majority, a second primary is held. In Georgia, in counties having more than one member of the legislature, a candidate is required to designate the candidate or incumbent he desires to oppose or succeed. Idaho provided for the non-partisan nomination of judges of the supreme and district courts by separate ballots, with no partisan designation, the declaration of candidacy being by petition. In North Carolina, Avery and Randolph counties are exempted from the primary, and in South Carolina, all magistrates in Spartanburg County and the game wardens in Laurens and Aiken counties are included in the Democratic primary. In Washington, no candidate is considered a party nominee unless he receives at least 10 per cent of the total vote cast by his party at the primary. In Louisiana, an independent candidate whose name is not printed on the ballot is required to file his name at least three days before the primary. In Mississippi, when there are two or more candidates to be nominated for any office, the vote is not counted unless the voter votes for the full number, and if any candidate receives a majority of the vote cast, he is not required to enter the second primary. In Indiana, a declaration of candidacy may be made by mail and is considered filed as of the date and hour when postmarked. The dates of the primaries were changed in Georgia and in Idaho, and, for economic reasons, the compensation or number of election officials was reduced in Illinois and in Idaho. For like reasons no primary is held either in Illinois or in Nevada where there is no contest or where there is a vacancy to fill. No city primaries are held in Kansas unless there are more than two candidates, and in certain cities in Minnesota, no primary is held except on resolution of a four-fifths vote of the governing body or on petition of 10 per cent of the voters. Minnesota adopted the open primary, all tickets being placed on one ballot, each party having a separate ticket and no voter being required to disclose his political affiliation.

GENERAL ELECTIONS

Nevada discontinued the system of straight voting by abolishing the party circle on the ballot and all other devices which are designed to secure and facilitate voting a straight ticket. Texas provides for unofficial returns by telephone or other expeditious means as soon as possible after the close of the polls. In Pennsylvania, all ballots are put up in books and are numbered and equipped with detachable stubs. When a ballot is given to a voter the number of the ballot is set opposite his name by the clerks, and when the voter returns the marked ballot, the number of the voted ballot is compared with the number set opposite his name to ascertain whether he voted an official ballot. Kentucky will permit college students to vote in the town where the college is located if the student makes a declaration of his intention to become a *bona fide* resident of such town. In Georgia, when any person who is elected to any county office is found to be ineligible by any court, an election is held to fill the vacancy instead of its being filled by appointment. Missouri simplified the method of voting a scratched ticket by providing that the voter may mark in the circle of the party a majority of whose candidates he desires to vote for and in the squares to the left of the names on any other ticket, and another act makes it unlawful for any employer to coerce any employee from participating in political activity. Illinois prohibits electioneering within 100 feet of a polling place, allows voters to be away from their work for two hours to vote, and provides that it shall be unlawful to hinder any elector from voting. In Minnesota, non-partisan candidates are permitted to appoint challengers. The laws of Missouri, Pennsylvania, Massachusetts, and Indiana were so changed as to provide for the printing on the ballot of the names of the candidates for President and Vice-President instead of the presidential electors. For the purpose of effecting economies, the compensation of election officials was reduced in Idaho, Maryland, North Dakota, Mississippi, Ohio, Illinois, Indiana and Virginia. For the same reason, in Illinois the number of precincts was reduced, and the expenses of elections are allocated between counties and cities when general and municipal elections occur on the same day, and city elections were postponed in Indiana and Missouri till 1934.

VOTING MACHINES

Maryland enacted a law authorizing and requiring the use of voting machines in Baltimore, and Pennsylvania made numerous detailed amendments to the existing voting machine law to render it more workable.

ABSENT VOTERS

Colorado enacted a law which provides for the preservation of absent voters' ballots, allows each of the major parties a watcher, and permits any candidate or his representative to be present to watch the count. In North Carolina, Union, Yancy, Randolph, Mitchell and Yadkin counties are exempted from the absent voters law, and Graham, Jackson, Rutherford and Swain counties are made subject to the law. North Carolina also provides that, where an absentee ballot has been cast, the voter cannot withdraw the ballot even on election day. The absent voter law of Mississippi was repealed.

INITIATIVE AND REFERENDUM

Idaho enacted an entire new law relating to the initiative and referendum of the same substantial type heretofore in force, and Oregon requires the filing of a financial statement by the sponsors of an initiative and referendum petition, and provides that if no negative statement is filed, an impartial statement relative to the meaning of the proposed measure must be prepared and filed by the attorney-general.

RECALL

Idaho enacted an entire new recall act, applicable to all elective officers except judges. This law is operative on petition of 10 per cent of the voters, if a state officer, and 20 per cent if a local officer is to be recalled.

LAW REFORM

By Clinton Rogers Woodruff

Honorary Secretary, National Municipal League

AMERICAN BAR ASSOCIATION

Fifty-sixth Annual Meeting.—The Grand Rapids meeting of the American Bar Association in August was generally regarded as one of the most successful of the series. The addresses were of a high order and several of them had a distinct bearing on the state of the nation.

State Impotency.—President Martin's address on "The Growing Impotency of the States" dealt with developments calculated to give genuine concern. "The present predicament of the States," he declared, "is due to no misconceptions of their political rights and powers. The cause is not hard to ascertain or analyze. Local government is just as strong, and is as strong only, as the men behind it. Lack of knowledge of government, corruption and prostitution of office, inaction on the part of local officials —these are the basic reasons why political relief was sought elsewhere. Nor were the State governments more stable. The States are what we make them. Want of a proper conception of the social functions of government, lack of interest on the part of the people in the activities of government, attack on personal and property rights by demagogues seeking political preferment, inability of officials to adequately and properly perform the duties of high office to which they have been elected, legislative inertia and neglect—these are the reasons which induced the effort by the man on the street, who knows little of the niceties of our Constitution, seeking social betterment or political reform, to turn his eyes toward Washington."

Legal Aspects and Tendencies.—Homer S. Cummings, Attorney General of the United States, spoke on "Modern Tendencies in the Law," the semi-official nature of whose message was not overlooked. Among the pertinent things he said was that "it is but natural that some of the legal aspects and implications of what is now going forward should disturb the more 'static' members of the Bar. I have had occasion to discuss these problems with many of our learned brethren who, while suppressing any public expression of doubt, are manifestly doing so with difficulty. . . . Later on, all in good times, I suppose these matters will be argued out before the courts and disposed of in orderly fashion. That hour I look forward to with a knowledge of its certainty, and with considerable tranquility of spirit."

Insurance Law.—Organization of a new section on Insurance Law was also a notable feature of the meeting. The wide interest in the subject of insurance law and the demand for a forum in which its peculiar problems may be considered are attested by the fact that the new section begins with over 1,400 members and is thus easily the largest one in the Association. The organization of the section on International and Comparative Law, which supersedes the section on Comparative Law, furnishes evidence of a widening interest in the former subject.

Acts and Amendments.—Conspicuous among the decisions arrived at was a resolution to the effect that the proposed Child Labor Amendment should be actively opposed "as an unwarranted invasion by the Federal Government of a field in which the rights of the individual States and the family are and should remain paramount"; various amendments to the Canons of Professional Ethics and the Canons of Judicial Ethics, particularly the amendment to Canon 34 of the former which deals with the subject of "Division of Fees"; various amendments to the Constitution of the Association itself; adoption of the Uniform Trust Receipts Act, as finally perfected by the Conference of Commissioners on Uniform State Laws; reaffirmation of its long held position against legislation to destroy the jurisdiction of the Federal Courts in controversies between citizens of different States, and recommendations to Congress for legislation on a number of important subjects.

National Bar Program.—The special meeting of bar association representatives called by President Martin in connection with the annual meeting was full of potentialities. The meeting was a step in presenting for the first time a nation-wide program for the work of the organized bar. The American Bar Association has heard debated over and over again the problem of uniting the bar associations—national, state and regional —into some sort of centralized or affiliated organization similar to those already achieved by the other great professions. There are, however, more than one thousand societies of lawyers in the United States. Only one of them is really national in scope and purpose—the American Bar Association. Many are state societies and still others represent county, city, regional or even selected groups. They exhibit every variety of activity, scope and tradition. The state associations are unfortunately in many cases the least active and most loosely organized. The means of integrating these professional societies with all of their inevitable differences in type, objects and local interest are not easily found. The conservatism and resistance to experiment so characteristic of the legal profession has been another special problem. A few steps have been taken inside the organization of the American Bar Association to facilitate contact with the state and local bars, such as the election of Vice-Presidents to represent judicial circuits and the modification of the means of selecting members of the General Council and the extension of their tenure of office. The new project turned aside from these problems of form or machinery and thrust directly to the end instead of at the means. The plan is to undertake a general program of work by all the active associations on a few selected topics for the coming year and thus to test whether some unification of work and purpose can be obtained without surmounting the hurdles of mere organization.

ASSOCIATION OF AMERICAN LAW SCHOOLS

The thirtieth annual meeting of the Association of American Law Schools was held in Chicago, Dec. 28, 29 and 30, 1932. The program consisted of three general meetings, thirteen Round Table conferences and the annual dinner. The meeting began with the President's address, ''Social Planning and Perspective Through Law,'' delivered by Dean Albert J. Harno of the University of Illinois College of Law. The second session consisted of a symposium, ''Coöperative Efforts to Raise the Standards of the Legal Profession.'' Three addresses were delivered at this time with titles as follows: ''What the Law Schools Can Do to Raise the Standards of the Legal Profession,'' by Elliott E. Cheatham of the Law School of Columbia University; ''What a Bar Association Is Doing to Raise the Standards of the Legal Profession'' by R. Allan Stephens, Secretary of the Illinois State Bar Association, and ''Law Schools, Bar Examiners and Bar Associations: Coöperation *vs.* Insulation,'' by Philip J. Wickser, Secretary of the New York Board of Law Examiners and Member of the Executive Committee of the National Conference of Bar Examiners. At the final general session the topic under consideration was ''The Value and Use of American Law Institute Restatements in the Teaching of Law.''

THE AMERICAN LAW INSTITUTE

The tenth annual meeting of the American Law Institute, held at Washington, D. C., May 4, 5 and 6, showed the usual full attendance and the unabated interest in the proceedings. Another final restatement, this time of Agency, was presented. From now on until the last Restatement of the Law is completed, Director William Draper Lewis declared that each year would see the publication of two or three additional volumes; the fall of 1934 the two first volumes on Torts, one relating to intentional harms to persons, lands and chattels, and the other to unintentional harms or negligence. During 1934 the volume on Conflict of Laws it is expected will be published. The two subsequent years should see the publication of the Restatement of Trusts and the first two volumes of the Restatement of Property.

The launching of the Restatement of Contracts has already proved a success. For the first time in its history the product of the American Law Institute came into contact with the cold realities of the book-buying phase of the business, and the result was all that could have been desired. In fact, the sale of sets of Contracts is said to have broken the record for the sales of law book sets for an equal period. The report of Herbert F. Goodrich, Advisor on Professional

Relations pointed out that the response by the profession to the publication of Contracts had been highly encouraging.

President Wickersham's address reviewed the work for the past ten years and spoke of unexpected delays that have somewhat retarded the work but which should occasion no surprise under the circumstances, and then reaffirmed the guiding principles of the Institute by way of answer to a criticism of the form of the restatement, the method of work that has been followed to date, and the underlying assumption of the whole undertaking *viz.*, that there is such a thing as "the law of the land" which can usefully be expressed and understood and which can be intelligently modified in its application by judicial decision or changed by legislation only when it is so expressed.

Chief Justice Hughes, whose annual address at the meeting has become a regular feature, followed with a statement as to the condition of business in the Federal Courts. There is now no substantial delay in the Supreme Court, the Chief Justice said, and the appellate work of the Circuit Courts of Appeals seems well up. The chief delays are the familiar ones in connection with bringing cases to trial in courts of first instance and in preparing cases for submission on appeal. The Supreme Court, however, is preparing to end this reproach so far as possible by the exercise of the authority recently conferred by Congress to prescribe rules of practice and procedure with respect to criminal cases after verdict. In the preparation of these rules, he added, the assistance of the Bench and Bar would be welcomed.

COUNTY AND RURAL GOVERNMENT

By Orren C. Hormell

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PUBLIC INTEREST IN LOCAL GOVERNMENT

Reform Movement.—Evidences of an awakened public interest in local government have never been so abundant and widespread as during 1933. Taxpayers' associations in many states have turned their attention to investigating the organization and administration of the several units of local government with the worthy aim of recommending drastic reforms. (See The American Year Book, 1932, p. 136). Noteworthy among the surveys of Taxpayers' Associations are the Tennessee Taxpayers' Association's survey of Haywood, Sumner and Campbell Counties, and a survey of the government of Alameda County by the California Taxpayers' Association. The outstanding contribution, during 1933, to the cause of efficient county and rural government, is found in two comprehensive reports: (1) Report No. 2 of the Committee on County Government of the National Municipal League, published as a supplement to the *National Municipal Review* of September, 1933; and (2) *Organization and Cost of County and Township Government*, by A. W. Bromage and T. H. Reed, University of Michigan, one of the studies prepared under the direction of the Michigan Commission of Inquiry into County, Township and School District Government, of which Dr. Lent D. Upson of the Detroit Bureau of Governmental Research is Director.

Plans for Efficient Government.—The above mentioned report of the Committee on County Government of the National Municipal League, under the chairmanship of Prof. John A. Fairlie, presents the "Principles of a Model County Government" a report which embraces the combined judgment of two years of careful study and research by thirty leaders in the field of political science and public administration. The proposed plan contemplates a county board "composed of from five to nine members elected at large, preferably by the Hare system of proportional representation, but on nomination by petition without party designation in any case", and exercising the legislative or policy determining functions. The administrative functions are to be centered in a county manager to whom are directly responsible the several department heads in charge of a few closely knit departments established on a functional basis. Departments of finance, public works, and health and welfare are specifically outlined.

The Michigan Report, (See THE AMERICAN YEAR BOOK, 1932, p. 136) mentioned above, after presenting an excellent comparative study of county and township government in representative states, with special statistical emphasis on selected Michigan counties, offers specific recommendations, including a constitutional amendment offering to counties an optional charter system and a home rule charter system. In either case the committee recommends a small county board elected at large, a manager appointed by the board or an executive elected at large similar to one of the options in the Virginia law (see THE AMERICAN YEAR BOOK, 1932, p. 138), and county activities functionally grouped in a few departments.

American County Association. — Awakened interest in the reform movement on the part of certain county officials is evidenced by the organization, at a convention in Chicago Oct. 26, of The American County Association by representatives of county commissioners from counties in 22 states. The avowed purpose of the Association is to establish a bureau of research to make a study of existing forms of county government with a view toward simplification and unification of tax systems, criminal laws, and relief fund administration.

Recommended Legislation — Governors and legislative committees in many states recommended legislation relative to reorganization of local governments. For example, a joint committee on taxation in New Jersey recommends shifting the burden of taxation by consolidating local governments, changes in structure and redistribution of functions.

HOME RULE

Ohio.—After eighteen years of agitation and failure, County Home Rule in Ohio finally won at the polls (See THE AMERICAN YEAR BOOK 1931, p. 128) in the form of a constitutional amendment providing an enabling act permitting a county to adopt a form of government, drawn up by the county itself or by the legislature in the form of optional plans, and authority for county-city consolidation.

California. — A noteworthy advance under the county home rule principle was achieved when on July 1, 1933, San Mateo County, California, began operating under a "home-rule county-manager charter." (See THE AMERICAN YEAR BOOK, 1932, p. 136). Home rule is definitely established in the county in accordance with a constitutional home rule provision. The county manager (or executive) is appointed by the board of supervisors from a list of qualified applicants (not less than two or more than five) submitted to the board by a "qualification board" of five members, consisting of two superior court judges, county superintendent of schools, and two laymen, one appointed by the above three and one by the board of supervisors.

Texas and New York.—Texas was added to the county home-rule states by the adoption by the Texas voters, Aug. 26, of a county home-rule amendment to the constitution. It applies to thirteen counties with more than 62,000 inhabitants. It makes possible the holding of an election for delegates to a county convention at which a charter commission would be named to draft a charter to be submitted to the people. The Mastick Commission on taxation in New York recommended a constitutional county home-rule amendment for that state.

CONSOLIDATION OF LOCAL GOVERNMENT UNITS

Federated Pittsburgh Plan.—The so-called "Federated Pittsburgh

Plan" (see THE AMERICAN YEAR BOOK, 1930, p. 119), defeated in 1929, was again revived by an act of the legislature of Pennsylvania, permitting the consolidation of Pittsburgh and Allegheny County upon a favorable vote of a majority of the votes cast in the county as a whole and also of a majority of votes cast in a majority of the cities, boroughs and townships.

Durham, N. C.—The City of Durham and the County of Durham, N. C., may now be consolidated under an act of the North Carolina legislature (1933) passed at the request of the Durham Chamber of Commerce whose committee published an excellent report with recommendations.

County Consolidation.—The agitation for the consolidation of counties and also of minor units of local government continued with renewed vigor during the year. The legislative assembly of North Dakota enacted a measure (Chap. 92, Sess. Laws, 1933) permitting counties to consolidate. Initiative is given to 20 per cent of the legal voters casting their votes at the last general election. Consolidation is effected if a majority of the votes cast in the petitioning county approve, and if 60 per cent of those cast in the "adjoining" county accept the proposal. The round table of the Virginia Institute of Public Affairs recommended that county consolidation, in many sections of the state, be effected in order to form counties of sufficient population, area, and wealth to support the essential services of local government.

The attack upon the Township became more articulate in 1933. In Minnesota, for example, 21 townships in Lake of the Woods County have dissolved and turned over their functions to the county commissioners. The above mentioned report on county and township government in Michigan condemned the township as it exists in sixteen Middle Western states as "an unnecessary and hence a costly and wasteful unit of government, all of whose functions can be as well or better performed on a county basis. . . ." The county home-rule amendment in Texas permits the counties affected to reorganize or consolidate their local units of government in the interest of economy and efficiency.

Lehman Endorses Consolidation.—Governor Lehman of New York, in his 1933 inaugural address, pointed out "how hopeless, how futile, it is to try to make them (local units of government) function economically with their present administrative equipment", and recommended "the consolidation of various agencies and functions of government."

ADMINISTRATION

Virginia.—The development of administrative reorganization in local government in Virginia is of first importance in light of the 1932 legislation. (see THE AMERICAN YEAR BOOK, 1932 p. 138). The round table of the Virginia Institute (July, 1933) concluded, among other things, that centralization of responsibility in an executive head is a vital necessity in increasing the efficiency of county government in Virginia, that such centralization is provided by the Virginia optional forms, and that the fee system as a method of compensating county officers be abolished. In Virginia, Albemarle County adopted the County Executive form at a special election May 2 and Henrico County adopted the county-manager form, Sept. 19. The first election under the new forms was held in the two counties Nov. 7, 1933. Princess Ann County, by popular vote of more than two to one, defeated the executive form, and Northampton County, by popular vote defeated, by a larger majority, the manager form. Interest in the optional form seems to be developing in a score or more Virginia counties.

California. — Sacramento County, April 27, followed San Mateo County in adopting a county-manager charter which went into effect July 1, 1933. Two other counties, Contra Costa and Fresno, are reported to be drafting county-manager charters.

Oregon. — An amendment to the Oregon constitution, permitting the adoption of the county-manager plan, was defeated at the polls July 21, by a vote of almost 2 to 1. A state-wide organization of county officials succeeded in effecting its defeat.

Nebraska.—The Nebraska legislature, on the other hand, adopted a county-manager enabling act under which any county so choosing may adopt the manager plan.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

CIVIL SERVICE FORUM, 985 Lenox Road, Brooklyn, New York City.

NATIONAL ASSN. FOR CONSTITUTIONAL GOVERNMENT, 716 Colorado Bldg., Washington, D. C.

NATIONAL CIVIL SERVICE REFORM LEAGUE, 519 Fifth Ave., New York City.

NATIONAL MUNICIPAL LEAGUE, 309 E. 34th St., New York City.

DIVISION V

MUNICIPAL GOVERNMENT

CITY POLITICS

By Clinton Rogers Woodruff

Honorary Secretary, National Municipal League

NEW YORK CITY ELECTION

The municipal elections of 1933 were highly interesting, resulting as they did in many instances in the overturning of existing conditions and organizations. In New York City, Fiorello LaGuardia, the Republican-Fusion candidate for Mayor was elected over the Tammany candidate and incumbent, John Patrick O'Brien, and the Independent Democratic candidate, Joseph Vincent McKee, one time acting mayor of New York. The vote for La Guardia was 858,551, for O'Brien, 586,100, and for McKee, 604,045. LaGuardia carried every borough, and the Fusion forces won three of the five borough Presidencies, the Comptrollership and an overwhelming majority in the Board of Estimate. The McKee forces carried the Bronx Borough Presidency. Tammany retained control of the Board of Aldermen, won the Manhattan Borough Presidency and the New York county district attorneyship for which place Ferdinand Pecora, the United States Senate's bank inquisitor ran on the McKee ticket and came in third.

OTHER CITY ELECTIONS

Philadelphia.—The Republican organization ticket was defeated by a substantial majority by a ticket composed ~~of~~ Democrats and Pinchot Republicans.

Cleveland.—The Republican candidate, the former Mayor Harry L. Davis, an old line Republican, was elected over the Democratic candidate, the present Mayor Ray T. Miller, who was backed by Newton D. Baker and the regular Democratic organization.

Boston.—Frederick W. Mansfield was elected on a ticket which had the endorsement of the Good Government Association. The Democratic candidate supported by the present Mayor of Boston ran third.

Detroit reëlected Acting Mayor Frank Couzens by a substantial vote.

Bridgeport, Conn. elected Jasper McLevy, a Socialist, over the Republican and Democratic candidates.

LOS ANGELES

Recall of Mayor Porter.—Los Angeles by a majority of 31,500 recalled Mayor John Clinton Porter. In office since 1929, Mayor Porter won a recall election last year because his opposition consisted of a scattered field of nonenities. There were many Los Angeles citizens desirous to get rid of him because as a "dry," he had "disgraced" his city by refusing to drink a wine toast to the President of the United States while junketing in France with other U. S. mayors two years ago; because he had snubbed Franklin D. Roosevelt when the Democratic nominee was campaigning in Los Angeles last year and because he had turned the police department into a corps of "super-snoopers." In defeat Mayor

Porter threatened to hang on to his job on the ground that Mayor-elect Shaw was not an American citizen.

Shaw Elected Mayor. — The new Mayor, Frank Shaw, born in Canada 50 years ago, was brought to the United States at the age of five by his father, a pioneer homesteader in Kansas and Colorado. He was twice elected to the Los Angeles City Council by the businessman vote. He was chairman of the County Board of Supervisors when elected Mayor. During this long public service no serious question had been raised about his citizenship. His father, who died when his son was 14, had been naturalized, which automatically made his minor children citizens.

PITTSBURGH

McNair Elected Mayor. — The Democratic candidate for Mayor, William N. McNair, was elected over the regular Republican candidate by a majority of 26,000.

Removal of Mayor Kline.—An order was issued by Judge Finletter of Philadelphia, specially sitting by assignment of the Supreme Court of Pennsylvania, which represented the final chapter in the case of Mayor Kline of Pittsburgh who was convicted of malfeasance in connection with the letting of city contracts for supplies. The original sentence was six months' imprisonment and $5,000. The new order removes Mr. Kline from office and retains the fine, but remits the jail sentence. This leniency results from a report by physicians on the condition of Mr. Kline's health. The Kline political regime was thereby ended. President Herron, of the Pittsburgh Council, became Mayor. It was understood that Mr. Kline was ready to resign in exchange for remission of the jail sentence. Removal of a Mayor by judicial decree is rare in Pennsylvania.

TYPES OF MUNICIPAL GOVERNMENT

By Clinton Rogers Woodruff

Honorary Secretary, National Municipal League

A MODEL MUNICIPAL CHARTER

A new edition of the National Municipal League's Model Charter was published during the year. This document has probably had more influence upon municipal government in this country than any other single publication of its kind. It is improbable that every word in the comparatively slight volume of 96 pages has been read by many thousands of persons, and only approximately 13,000 copies of it have been sold, but directly or indirectly it has re-fashioned the government of hundreds of cities throughout the country. The model city charter is now in its fourth edition. It has been the custom, since the first one was drafted in 1900, for the authorities and experts responsible for its text periodically to revise it and bring it up to date in accordance with the latest experience. Thus it is a living as well as an historical document, representing the accumulated experience of American experimentation with the machinery of democracy.

The 1933 revision, like its predecessors, rests upon a foundation of the manager plan with proportional representation. The text has been clarified and improved in many places where experience has shown improvement could be made. The provisions establish a legislative body of five or more members elected from the city at large under a system of proportional representation which gives to each group in the population representation on the council in direct proportion to its voting strength. The city council appoints the city manager who is responsible for the efficient administration of the city government and who in turn appoints his subordinates, subject to civil service provisions. Since proportional representation cannot be adopted in all cities at the present time, an alternative system of nonpartisan election at large is also recommended. Nominations by petition are recommended, whichever system of election is employed.

The chief modifications in the new Model include new sections relating to the department of finance; complete revision of the sections on city planning and zoning to keep pace with the rapid advance in these fields during the past decade, and the appearance of slum clearance and blighted area provisions for the first time. An innovation also appears in the appendix to the document in the report of a committee of the International City Managers' Association on objectionable charter provisions. To know what to keep out of a charter is often quite as important as to know what to put in, the committee emphasizes.

SMITH'S PLAN FOR NEW YORK CITY

The Alfred E. Smith Plan proposed for New York City was as follows: A municipal government headed by the Mayor, a Vice Mayor and a cabinet of ten department chiefs; the Vice Mayor would preside over a city Senate of eleven members, three each from Manhattan and Brooklyn, two each from Queens and The Bronx, one from Richmond; a city Assembly of 23 members would be formed, one member from each State Senatorial district in the city; one district attorney, one sheriff, no borough presidents; all executive functions of the city under the Mayor except the office of Comptroller whose sole function would be to report to the electorate the state of the city's finances.

Two noteworthy departmental elisions were suggested by former Governor Smith. In a Department of Public Safety would be lumped the police and fire departments, the city inspection services. The education department would not only oversee the school system, but all museums, the Bronx Zoo, Grant's Tomb. Under the Smith Plan, the Governor, with the approval of the State Senate, would appoint superior court judges for life, with 70 as the retirement age. The Mayor would appoint magistrates to the lower courts under the same terms.

NEW YORK CHARTER PROPOSALS

Two of the proposed plans for New York City's new charter included voting by the proportional representation plan. Judge Samuel Seabury's report suggested a single council of 25 members elected by the boroughs and a non-partisan civil service commission with the abolition of county governments within the city. The legislative committee's report favored a council of 17 members, two members of which would be elected mayor and comptroller respectively, with county governments merged with the city departments. There would be an elective borough council to assist the borough presidents.

WISCONSIN LOCAL GOVERNMENT

Probably the most important bill relating to local government ever passed by the Wisconsin legislature was sponsored by the League of Wisconsin Municipalities as a result of action taken at the 1932 League convention. This new law does for villages what was done for cities in 1921. It repeals the detailed enumeration of village powers formerly contained in the statutes and substitutes therefor a new section which contains a broad grant of power in very general terms. The language used therein is almost identical with that used in the broad grant of power to cities. There have been a number of decisions of the Wisconsin Supreme Court upon the language used in the grant of power to cities, and the court has adhered to the spirit of this language and has broadly construed it. There seems to be little doubt but that the Supreme Court will take the same position in regard to this broad grant of power to villages since substantially identical language has been used. As a result, in the future, villages will no longer have to search the statutes for the specific grant of a particular power, but instead can rely upon this general grant of power unless the legislature has specifically limited the power of the village in that particular matter.

This broad grant of power to villages is not quite as fundamental as the home rule amendment to the state constitution which broadened the powers of villages, but it will mean that in most instances it will be unnecessary for villages to resort to their home rule power. The mere fact that the legislature has in definite language restricted the powers of a village on a specific subject elsewhere in the statutes does not necessarily mean that this is final, since if it relates to a matter of local concern a village can presumably proceed under its home rule power to elect that this particular provision should not apply to that village. In connection with this it would be recalled that the fact that the legislature may have enacted state regulations upon a particular point does not necessarily mean that a city or village is thereby barred from proceeding on this subject.

CITY MANAGER BROADCASTING

The City Manager of Binghamton, N. Y., carried the administration's report direct to the public through the radio. Twenty-four department heads in semi-weekly talks reported the detailed operation of their bureaus. This wholesale broadcast of city conditions was without cost, for the radio station owners awarded the time on the air to the city servants to make a direct appeal to property owners. Starting in April, the series ran until July 1. In telling their stories the speakers made a factual presentation of the operation of their respective departments, together with costs and savings made over the past year. The listeners-in sat as the jury in the case. In commenting on this method of reporting their stewardship direct to the taxpayers, the City Manager said that he liked the idea of carrying the story first-handed to the people who do the judging as to the effectiveness of the administration rather than relating it through a second person. The elaborate report by department heads provided the vehicle for the individual to render his accounting in his own way, since he was given a free rein without the possibility of being misquoted. Taxpayers liked the frank discussion of their problems and an explanation of how their money was spent. Favorable comment was received from many who followed the series throughout. The title of this series of fifteen-minute talks was ''Where the Taxpayer's Money Goes'', and each department head had a sub-title which pertained to his particular branch of city service. Every department, bureau, board and even the Committee on Unemployment, was represented.

INTERNATIONAL CITY-MANAGERS' ASSOCIATION MEETING

The twentieth annual conference of the International City Managers' Association, held in Chicago Sept. 18-20, was the largest in the history of the Association. A total of 290 were registered during the three-day conference, of which number 91 were city managers representing cities in 28 different states. Only twice previously has the attendance exceeded 200, once at Asheville in 1928, with 204, and at Cincinnati in 1932, with 228. Effective methods of collecting taxes, keeping the public informed on city activities, methods of securing revenues to supplement the property tax, the refunding of municipal bonds, reducing incendiary fire losses, coordinating adjoining police agencies, handling press releases, and personal problems, were discussed at group sessions. Other sessions held during the conference included: municipal finance, traffic safety, establishing sound pay schedules for public employees, and matters pertaining to the city manager profession. About fifty city managers gave talks on their most difficult problems during the current year. Willard F. Day, City Manager, Staunton, Va., was elected President. Clarence E. Ridley was continued as Executive Director.

CITY MANAGER PROGRESS

These cities and counties adopted the manager plan by vote of the people during 1933: Albemarle County, Va.; Ellsworth, Me.; Hackensack,

N. J.; Henrico County, Va.; Presque Isle, Me.; Sacramento County, Calif.; South Portland, Me.; Wilson, N. C. Proposals to adopt the plan were defeated in: Beacon, N. Y.; Cliffside, N. J.; Ft. Lee, N. J.; Garfield, N. J.; Long Beach, N. Y.; Miamisburg, O.; Northampton County, Va.; Parsons, Kan.; Princess Anne County, Va.; Rockland, Me.; Utica, N. Y.; Westwood, N. J. Proposals to change the form of government were defeated in favor of retaining the council-manager plan in the following places: Albert Lea, Minn.; Ft. Lauderdale, Fla.; Long Beach, Calif.; Oklahoma City, Okla.; Pacific Grove, Calif.; St. Johnsbury, Va.; Stevents Point, Wis.; Clawson, Mich., adopted an ordinance to abolish the position of city manager created by ordinance in 1928.

CITY MANAGER YEAR BOOK

The *City Manager Year Book* for 1933 was edited by Clarence E. Ridley and Orin F. Nolting. It has four sections, at least three of which are of great interest to anyone interested in municipal government. The section on municipal administration offers a resume of the especially significant events and developments in the several fields of municipal government. Brief articles on financial planning, budgeting, revenues, taxation, and assessments, accounting, purchasing, personnel, administrative organization, court decisions, city planning and zoning, housing, recreation, welfare, education, health, police and fire administration, public works, utilities, council-manager government and county management, are contributed by outstanding specialists in those fields. The bulk of the volume is devoted to the proceedings of the 1932 city manager convention, at which attention was given to numerous problems of administration with some emphasis on retrenchment, police and other special aspects of city management. The up-to-date directories of manager cities are invaluable for reference purposes. The section on the business of the International City Managers' Association includes several items of general significance as well as the financial reports and routine information.

MUNICIPAL FUNCTIONS

By Clinton Rogers Woodruff

Honorary Secretary, National Municipal League

CITY CREDIT AND INDEBTEDNESS

Chicago Conference.—Seventy-five mayors, municipal and state finance officials, bankers, professors of political economy, municipal research consultants and others, meeting in Chicago, July 21-23, came to an agreement on a number of important points. The conference met under the joint auspices of the Public Administration Clearing House, the Municipal Finance Officers' Association, the American Municipal Association, the United States Conference of Mayors, and the University of Chicago. This conference accepted reports of its three committees, one on municipal debts, one on tax delinquency and one on the distribution of revenues and functions among the several levels of government, Federal, state and local. A resolution was also adopted, recommending the establishment of a commission by the Federal Government, composed of representatives of Federal, state, and local governments:

"To examine the whole existing structure of taxes and revenues, national, state, and local; the extent of unnecessary overlapping taxation; the appropriateness of the present division of functions of government; and to suggest such rearrangements and reasonable interrelation of the functions and taxes as the present-day facts may demand."

Municipal Debts. — Three recommendations were approved as to municipal debts:

1. That efforts be made to reduce

the need for short-term borrowing by synchronizing the taxing year with the fiscal year, by collecting taxes in monthly or quarterly instalments, and otherwise. Such action, it was felt, would put governments on a more businesslike basis, while reducing the burden on the taxpayer.

2. That legislation be sought to place self-liquidating short-term municipal obligations on more advantageous terms in dealing with the Federal Reserve system and its member banks.

3. That, with respect to long-term debt, in those relatively few cases where no other remedy is available, legal machinery should be provided by Federal legislation for the emergency, which will enable local political subdivision of government, under the supervision of the courts and with adequate safeguards, to arrange for the composition of their debt settlements with the holders of their obligations.

CITIZENS' COUNCILS FOR CONSTRUCTIVE ECONOMY

Objectives. — At the call of the President of the United States, a group of seventy persons selected by national organizations representing agriculture, business, government, education and public welfare, met in Washington in January, 1933, to consider the crisis in education. One of the results of this conference was a recommendation that there be set up in every community a Citizens' Council broadly representative of all interests to clarify and mobilize public opinion in matters of vital concern to the community. The objectives of the Citizens' Council program, which was launched nation-wide in April were stated as follows:

1. To promote interest in local and state governmental problems, to the end that the present wide-spread demands for reduction of public expenditures may produce actual and permanent improvements in the governmental organization, the tax system, and the services rendered by public and semi-public agencies.

2. To encourage the organization of local and state Citizens' Councils to consider the problems of maintaining essential community services in the face of the need for reduction of public expenditures.

Executive Committee.—A Committee of the National Municipal League, including representatives of 57 national organizations, was set up to serve as a clearing house for information regarding the organization and work of Citizens' Councils, and an executive committee was chosen as follows: Chairman, Thomas H. Reed; Vice Chairmen, Harold S. Buttenheim, C. R. Mann, Carl H. Milam; members, Mrs. Hugh Bradford, Louis Brownlow, Lee F. Hanmer, Mrs. Charles Cary Rumsey, Mrs. F. Louis Slade, Miss Belle Sherwin; Director, Howard P. Jones.

Membership.—It was recommended that the membership of a local council consist of representatives of existing civic, educational and social progress organizations in a community, so that it would serve to coördinate the efforts of these groups in dealing with civic problems and be a cross-section of all interests in the community. The council's work was to be accomplished through careful study of the problems facing the community, coöperation with public officials, by clarifying and mobilizing public opinion, and by proposing constructive action.

Broadcasts. — In connection with the setting up of councils two series of radio talks were presented in coöperation with the Committee on Civic Education by Radio of the National Advisory Council on Radio in Education and the American Political Science Association. The summer series of talks, part of the "You and Your Government" series, given weekly over a nation-wide network, presented views of the public official, the taxpayer and the professional worker on the subject of Constructive Economy in Government. A series beginning Oct. 3 entitled "The Crisis in Municipal Finance" had to deal with the maintenance of municipal credit, city budget problems and other aspects of local finance.

Delinquent Taxes. — Since it became evident very early that one of the outstanding problems to be faced by Citizens' Councils was that of delinquent taxes, a nation-wide "Pay Your Taxes Campaign" was launched.

Councils Established. — Wide publicity was given to the Citizens' Council movement through the coöperating national organizations who urged their members to take the initiative in setting up councils and to coöperate in forming them. Some called state meetings to consider the project of setting up councils on a state-wide basis. Six months after the Central Committee was set up, councils were at work in 41 cities, 55 councils were in process of formation and individuals or groups in nearly 300 additional communities were interested in the project of setting up local councils.

Work of the Councils.—The work being done by Citizens' Councils was of a varied nature dependent upon local exigencies. Some were working on methods for reducing tax delinquencies, some were examining the local budget with a view to suggesting economies of a constructive nature. Several were working out ways and means of extending needed public works with the aid of the National Government. Unemployment and public welfare problems of the community engaged the attention of several councils. Some were attempting to determine the weakness in and methods of improving municipal administration. Problems involved in administering local schools and libraries engaged the attention of others. Reorganization of local government and extension of municipal ownership of public utilities were other subjects of study.

PHILADELPHIA'S RECOVERY

A Balanced Budget.—J. Hampton Moore now serving his second, but not consecutive, term of office of Mayor, has succeeded in balancing his budget and is meeting all interest payments as they fall due and paying off a portion of the indebtedness, thus establishing a record very different from that of the other large cities of the country. This he has accomplished through effecting consolidations, eliminating unnecessary positions and various budget rearrangements and refusing to allow the Departments to create deficiencies. In the preparation of the Budget for the year 1933 city departments were directed to hold to the appropriations for the twelve months period, the result being that with very few exceptions which were adjusted through transfers, the city departments were able to carry through until Dec. 31 without deficiencies. A monthly check-up upon city department expenditures to keep them within a one-twelfth quota, making them to conform to the authorized appropriation for the year was resorted to and operated effectively.

1934 Estimates.—During consideration of the city department estimates for 1934, a number of important problems arose. Due to careful management and the lowering of commodity prices in 1932, it developed that large sums of money did not merge at the end of 1932 and were available for expenditure during 1933. These sums do not appear in the 1933 budget. From the Department of Supplies and Purchases alone more than $788,000 of 1932 money in that department was available for expenditures in 1933. On the other hand the change in economic conditions caused by Federal legislation resulted in some cases in greatly increased prices for various commodities, including foodstuffs and merchandise. Some of these increases, the Director of the Department reported were in excess of 50 per cent over the prices paid in 1932. These changes have had to be taken into consideration in the adjustment of direct and supply items of the city departments for 1934. One of the difficult problems which confronted the Mayor was the fact that the city and county of Philadelphia are coterminus, and he has no control over the appropriations for the county offices except through the drastic power of veto. In transmitting the city budget to the Council the Mayor drew the attention to legislative enactments which fix salaries in county departments, boards and commissions, which may assist to a better understanding of the problems of budget-making in a city like Philadelphia but apart from this it would appear that if reductions are made in county departments, it may be possible to meet the financial requirements of the city for 1934 without increasing the tax rate, and it may also justify a restoration to the City employees of a part of the 23 per cent that was taken from their basic salaries in 1933 including policemen, firemen and park guards.

ADVANCE IN POLICE WORK

In the chapter on "Crime and Punishment," in the report of President Hoover's Research Committee on "Social Trends," a gradual increase in the amount of crime is recognized but the existence of a "crime wave" is denied. The organization of criminals has developed considerably in the last decade and a half, and such organization is expected to continue, although large-scale organizations that have profited largely from bootlegging will tend to break down if liquor sales are legalized. No substantial decrease or increase in the number of crimes is anticipated in the immediate future. The authors of the chapter, Edwin H. Sutherland and C. E. Gehike, Professors of Sociology at Chicago and Western Reserve Universities, respectively, refer to advances in police work as follows:

"The agencies of criminal justice have not developed sufficiently to enable the state to cope successfully with the problem of crime. This is not because of evident deterioration in the police, the courts and the penal institutions, but because of the failure of these agencies to keep pace with the growing difficulties of the situation. The police have shown, in a few places, more promise than any other agency of criminal justice.

"The results of physical sciences have been applied in the detection of identification, of criminals, in communication, and in other ways, and the best practical knowledge available has been utilized in the organization of work and promotion of coöperation and of morale. In few other branches of criminal justice is the enthusiasm in the small groups of leaders so great as in the police field, and in few other branches is the number of persons approaching the problems with a professional interest so great as in the police field. But these developments have, in general, been confined to a small number of places, while in many other places appointments are determined by patronage, work is conducted primarily with reference to political considerations, and graft, inefficiency and brutality prevail."

POLICE REORGANIZATION IN CHICAGO

Numerous improvements have been introduced during the year in the organization and administration of the Police Department of Chicago. Although the numerical strength of the force has been reduced in the last two years approximately from 6,700 to 6,000, the number of men on foot patrol has been increased 150 per cent, being now about 1,900. The efficiency of the department has been further increased by adding patrol cars and by placing in operation an extensive radio system. There are now some 100 small patrol cars and 50 large high-powered ones equipped with radio. Furthermore, 20 per cent of the present force constitutes new blood in the department. The average age has been lowered, and a greater proportion of young men will be encouraged by the reduction of the admission age to a range of 21 to 29 years, from the former limits of 23 to 35. Civil service methods in disciplining new policemen have been improved, and a more thorough check-up on the character of those examined is made. Principal credit for the improved departments is due to Police Commissioner, James P. Allman promoted from a captaincy in the fall of 1931. The structure of the department has been reorganized, and a modern budget system has been adopted.

These and related improvements are a direct result of the recommendations growing out of the survey conducted under the auspices of the Citizens' Police Committee, the studies of which began in 1929 under the direction of Bruce Smith, staff member of the Institute of Public Administration.

POLICE RETRENCHMENT

Police work during the past year has had to adjust its program to the rapid decline in public revenues. Since nine-tenths of any police budget is made up of salary and wage accounts, drastic reductions in police compensation have represented the chief method of retrenchment. In a few instances, there has been a reduction in the authorized strength of the police force as a measure of economy. None of the anticipated serious results of police salary reduction in a time of unrest has been realized. The police have gone on with the task of law enforcement even though their reduced pay checks were some months in arrears.

There has been a fairly general reduction in street traffic accidents and street traffic fatalities. Numerous cities have also experienced a reduction in major offenses which may forecast an end to the rising tide of crime. Minor offenses, particularly petty larcenies, have shown some disposition to increase, as is natural in times of distress.

The past year has been marked by a number of riotous demonstrations which for the most part have been ably handled by municipal police forces. Despite the serious implications of some of these riots, the police have used the right to employ force (which the law places in their hands) with judgment and discretion. Hence these disturbances to public order have been suppressed with a minimum of confusion.

Continuing need for economy is forcing a review of police quotas in many jurisdictions, and has resulted in a distinct acceleration of the trend toward the mechanization of police work. This is particularly evident in the matter of police communications by radio which in turn stimulates the use of motor patrols. There is some danger that this process may be carried too far, although there can be no doubt of the need for more expeditious response to criminal complaints through the use of radio broadcasts to police patrols.

ASSESSMENT FOR FIRE LOSSES

The fire chief in Berkeley, California, has been authorized to bill property owners for the service rendered by the fire department at fires caused by negligence, in accordance with the revised fire prevention code which became effective July 1. Whenever it appears that a fire has resulted from failure to comply with the fire code or any other city ordinances, the fire chief is required to collect all evidence and notify the city manager and other proper authorities who are empowered by law to pursue the investigation of such matters. If it is found that the fire resulted directly or indirectly from failure to comply with the code or orders of the fire department, the negligent person (person, firm or corporation, either as owner, lessee or occupant) is billed for the cost of the services of the fire department in extinguishing the fire, the cost to be based on the actual number of fire companies responding to the fire from the time the alarm sounded until the last fire company working at the fire has reported again for service. In computing the actual costs, the fire chief is required to determine the operating cost per hour for the full number of companies, using as a basis the total fire department operating costs for the year ending June 30. The fire chief is required to enforce collection and if necessary the city is empowered to take civil action against the negligent party. The money collected is to be paid into the general municipal fund.

INSTRUCTION AND TRAINING FOR FIREMEN

A thoroughgoing system of instruction for firemen is being worked out in Oklahoma through the collaboration of the State Association of Firemen, the State Department of Vocational Education, the Oklahoma A. and M. College, the University of Oklahoma, the Oklahoma Municipal League and the Oklahoma Inspection Bureau. The Association of Firemen has for five years had an educational committee charged with the responsibility of developing a course of instruction and training for firemen, and fire schools have been held under the committee's auspices in four cities. It is now desired to extend the benefits of this training to include as many as possible of the 5,000 firemen, both paid and volunteer, in the State, and the institution of a teacher training service whereby skilled firemen can become qualified as instructors for other firemen is deemed to be the proper method. Advantage is being taken of the work of the Federal Board for Vocational Education. The first unit of the teacher training program was established in the Autumn at the A. and M. College, with representatives of 22 cities present. This work is to be expanded so as to train instructors for more municipalities, and possibly itinerant teachers for sparsely settled territory.

FIRE LOSSES

The fire loss estimates published by the National Board of Fire Underwriters show a definite decrease during 1933 as compared with 1932 and 1931. Their estimates for 1931 and 1932 and the first eight months of 1933 are as follows:

	1931	1932	1933
Jan....	$44,090,499	$39,224,783	$35,547,565
Feb...	41,776,051	39,824,622	36,661,481
March.	44,074,362	49,189,124	35,321,248
April..	41,423,764	43,822,233	27,825,970
May..	37,835,273	39,270,524	24,338,714
June..	33,368,378	34,338,670	21,578,609
July...	33,024,594	32,982,434	20,004,049
Aug...	31,917,630	31,425,931	23,626,505
Total	$307,510,501	$310,078,321	$224,904,141
Sept...	$33,202,986	$30,972,318	
Oct....	35,501,530	30,734,458	
Nov...	35,287,641	31,167,708	
Dec...	40,514,368	39,190,506	
12 mos.	$452,017,026	$442,143,311	

These are preliminary estimates only and may vary considerably from the final figures. However, they may safely be used for comparative purposes.

There may be various explanations for the decreased fire losses this year. One factor which has received a good deal of attention is the change in the policy of the insurance companies beginning about the time of the bank holiday last spring (1933). Since that time the general policy has been to stop competition between companies as to prompt payment of losses and to delay payment for the legal period of thirty to sixty days. Smaller inventories and decreased dollar values are also doubtless a factor.

FIRE PREVENTION

One of the principal developments in fire prevention and fire insurance is the growing knowledge on the part of the public that fires collectively are paid for by the public as a whole. Even if one's own property is not destroyed but he carries insurance, he shares the loss of the man whose property does burn. The cost of his insurance is based on all fire losses and the higher the losses the higher the premiums. Whether one goes to an insurance office to pay premiums or not, he is nevertheless paying, just as one pays taxes although he may not necessarily go to a tax office or a court house for that purpose. If one lives in any kind of a dwelling, someone is paying for the fire insurance to protect the money invested in that dwelling. The same is true of the stores where food and clothing are purchased and of the factories where they are made. The consumer pays the insurance premiums because he pays the rent and the merchandise bill in which the cost has been figured. The public is realizing this more and more.

The same is true of arson. As people realize that property which is burned maliciously also is charged against them indirectly, they become more interested in helping to prosecute the firebugs whose crimes cost them—the insuring public—money. Arson fires are the cause of loss of life to many people and the maiming and crippling for life of many more. The growing realization of this is making people more interested in coöperating with the authorities in prosecuting those charged with the crime of arson.

The work of the Committee on Incendiarism and Arson of The National Board of Fire Underwriters is having its effect. The renewed vigor on the part of prosecuting attorneys in connection with such work has resulted in the rounding up and prosecution of professional arsonists and the beginning of the year 1933 saw a decrease in the number of arson cases.

During the past year, particularly the past few months, many cities have secured loans from the Federal Government for water works improvements and other loans are pending. Not much construction work has actually taken place, but the prospects are that much will be done during the coming year.

A number of cities, and water companies, have taken advantage of low prices, and the opportunity to aid in general conditions by using the unemployed for labor, and have spent any available funds on improvements, in some cases doing work in advance of what otherwise would have been accomplished.

There has been increased interest in fire prevention inspection work by members of fire departments, with resulting decrease in number of fires.

There has been an increase in the number of firemen's schools, especially in Middle West states, where firemen, both paid and volunteer, go for a week's training in fire fighting methods and instruction in fire prevention work.

There has been a noticeable increase throughout the country in the realization of the value of salvage work and drills on the part of the fire department. The purchase of covers and instructions in their use has proved a good investment, with the result that much property and material which otherwise would have been damaged has been saved. It appears that there has been a slackening of the reduction of the manning or personnel of fire departments, as the folly of too much reduction incident to the depression became apparent.

SAFETY MESSAGES ON BILLBOARDS

Somebody persuaded New Jersey officials to use one of the causes of automobile accidents to prevent automobile accidents. Five hundred "safety" posters are now displayed on billboards along Jersey highways, an association of billboard owners giving the space to the state, each poster to be signed by the Commissioner of Vehicles. The design of these billboard safety messages is described as "striking and even gruesome." Their use was opposed in a statement issued by the National Council for Protection of Roadside Beauty, which said: "The menace of the roadside billboard through distraction of attention, as well as through obstruction of vision, is no mere clubwomen's notion. The National Automobile Chamber of Commerce has declared that billboards, by distracting the attention of drivers, may be a contributing cause of accidents."

RESTRICTION OF BILLBOARD PLACING

One hundred and fifty-eight national firms have agreed to keep their signboards (if any) in strictly commercial districts within the cities and villages. Sixty-six of these firms state that they are not using outdoor advertising in any locations and have no intention of using the medium. It was not an easy task to compile such a list, but the demand for it became too insistent to be longer ignored and the work was done by the National Council for Protection of Roadside Beauty, coöperating with 155 other groups including many powerful national and state organizations. Thousands of men and women who are demanding a countryside free from advertising feel that to be consistent they should give their preference to products not advertised on the landscape. A list of the firms who do not use the landscape for advertising was requested as a Buyer's Guide. Many of these firms now using posters have asked that they be notified if their posters are found placed, contrary to directions, in rural locations.

ROADSIDE IMPROVEMENT AND NRA HIGHWAY PROGRAM

Because roadside improvement affords unusual opportunity for the employment of hand labor it is to be featured in the NRA highway program. The U. S. Bureau of Public Roads in directing the use of the $400,000,000 made available by NRA funds for highway expenditures has listed "the appropriate landscaping of parkways or roadsides on a reasonably extensive mileage" as second in the selection of six projects to be included in the program.

Still further, in its directions to the District Engineers for the expenditure of National Recovery Highway Funds the Bureau requires that each state highway department include in its program a definite number of projects for roadside landscaping.

In some states the highway department, failing to realize the full need of roadside development, will seek to save practically all funds for construction, diverting as little as possible to the roadsides. Highway Commissioners are to be asked just what projects they expect to carry in roadside improvement and a public demand created that a certain sum shall be appropriated from NR highway funds for roadside development. It is reported that Illinois has already appropriated $250,000 and Kansas $500,000 for roadside work. Iowa is asking for $500,000.

MASSACHUSETTS BILLBOARD CASE

Another victory in the long contest to establish legal restriction of billboards in Massachusetts was noted when Justice Donahue of the Massachusetts State Supreme Court on May 23 announced his decision to deny the motion of the billposters' counsel to recommit the Massachusetts cases to the master. This is a most encouraging forward step, bringing the matter finally before the court after seven years of hearings by the master. It gives reasonable hope of an early decision on the constitutionality of the Massachusetts anti-billboard laws, by-laws, and ordinances passed thereunder, as well as regulations promulgated by the Highway Division of the State Department of Public Works. The Attorney General and also Samuel Hoar, counsel for the town of Concord and for the Massachusetts Billboard Law Defense Committee, have filed motions for confirmation of the master's report and supplemental report. These motions, together with plaintiff's objections to the reports and various other proceedings, have been heard and reported without decision to the Supreme Court of Massachusetts.

MUNICIPAL MISCELLANIES

By Clinton Rogers Woodruff

Honorary Secretary, National Municipal League

U. S. CONFERENCE OF MAYORS

Relief Measures.—The mayors of 66 of the larger American cities met in Chicago Sept. 22-23 for the first annual meeting of the United States Conference of Mayors. The main attention of the meeting was centered on the relief situation and the financing of municipal activities. Harry L. Hopkins, Federal Relief Administrator, told the mayors that the Federal Government would assume entire responsibility for relief to transients; railroads would be asked to stop "riding the rods"; city authorities would be asked to enforce local vagrancy laws, and schools would be established for transients. Mr. Hopkins stated further that when winter came there would be a 1,000,000 more families on public relief than were receiving aid at the same time the previous year largely because of the transfer of relief cases from private to public agencies.

Finance Resolutions.—The Conference adopted three resolutions looking toward the aid of cities in financial difficulty. One favored the enactment of legislation under which municipal tax warrants, notes, or certificates may be used as collateral or may be purchased by some Federal Government agency; a second resolution favored an amendment to the Federal statute to permit postal savings banks to act as public depositories and accept municipal funds, and a third resolution endorsed the principles of the Wilcox Municipal Readjustment Bill allowing municipal bankruptcy.

Committee to Study P. W. A. — Secretary of the Interior Ickes, answering charges that red tape was delaying the public works program, stated that such attacks were being made chiefly by municipal executives who themselves had delayed or had not yet presented public works programs to the Federal Government. The conference accepted Secretary Ickes' invitation to send a committee of mayors to Washington to study the Public Works Administration, selecting the Mayors of New Orleans and Milwaukee and Paul V. Betters, secretary, to make the trip. The Conference also adopted a resolution advocating speeding up the allotment of Federal funds for local and state work projects under a plan by which the government would advance the money upon the approval of the Federal engineer in each state instead of waiting for a study of each project in Washington.

MUNICIPAL AUDITING DURING DEPRESSION

Independent Auditors.—According to the Bureau of Research in Municipal Government at Harvard University, although the depression has shown that American cities are conducted on a higher ethical plane and fulfill more important purposes in the communities than private business, it has also taught us the need of efficient and businesslike government to avoid heavy tax rates. One method of securing integrity and intelligence in conduct of affairs, according to the Bureau, is the audit of municipal finances by independent auditors who can bring knowledge of methods used in other cities, and an impartial attitude. The natural body would be the taxpayers, who have a stake in government like that of the shareholders in business, but they have no general organization outside of the government. In New Jersey and other states, cities may obtain audits from a list of public accountants certified by the state, a system which has worked well except when the auditor thinks more of the next year's job than of professional pride, and excepting the auditors' lack of knowledge of other municipal methods. The Municipal Leagues of Kansas, Illinois, and Nebraska furnish the independent sponsor for audits. Their trained staffs can be kept free of the next year's job idea, but checking up on its own members may be embarrassing for the League itself.

Auditing Service in Massachusetts. — Several states, of which Massachusetts is a notable example, have relied on strong and able state civil services to furnish this auditing service to their own cities and towns. State audit in Massachusetts according to the Bureau fits well into the practices of state certification of town notes, examination of municipal loans, and, to a limited extent, of municipal budgets. Knowledge of municipal finances is thus concentrated in the State Department of Corporations and Taxations, and a permanent specialized auditing force has been built up. Wisdom was shown by the Director of Accounts, Theodore N. Waddell, in leaving state audit on a voluntary basis for a long time, and, after statutes made a biennial audit compulsory, moving carefully before forcing his services on cities. In rare instances, on request of substantial elements of the community, mayors have been advised to request audits. As a result of this policy, 71 municipalities have asked for annual audits, 211 have asked for the state accounting system, the biennial compulsory audit is almost complete, and yet no one would maintain that the spirit of local self-government has suffered in the state.

Recommendations. — Education is one of the greatest values of the state audit. Recommendations for bookkeeping improvements are to be found in every report, while unwise practices like viewing a credit balance in surplus as available for expenditures have been stopped. Turning all cash receipts into the treasury, collection of long overdue taxes or bills, and other sane practices are regularly advised. The accounting system ties in with reports of municipal finances, which are among the most useful and reliable in the country and which fit the Census Bureau classification. Thus political statisticians as well as municipal officials, councilmen, city creditors, find the work of value.

PUBLIC ADMINISTRATION SERVICE

Nine national organizations in the field of government were incorporated, as a coöperative enterprise, under the title of the Public Administration Service, as a consulting and research agency for cities, counties, states, and other governmental units. This Service will aid public officials to bring about constructive economy in government by revising and installing budget and other financial systems, by designating work programs, and improving organization and methods. Its consulting service will be done on a non-profit basis, and only at the invitation of public officers and in friendly collaboration with them. The Service will also formulate and distribute standard practices and advanced methods of conducting governmental affairs, and will carry on joint research projects in administration for its constituent organizations, the results of which will be published through its Division of Publications.

Its governing board will determine its policies and consists of the executive directors and secretaries of nine national agencies, all but one of which have their headquarters in Chicago: American Legislators' Association, American Municipal Association (the federation of state leagues of municipalities), American Public Welfare Association, Governmental Research Association, International City Managers' Association, Municipal Finance Officers' Association, United States Conference of Mayors, and National Municipal League (of New York). The office of the Service is at 850 East 58th Street, Chicago, Ill. This Service is a continuation and expansion of the work heretofore carried on by the Research Committee of the International City Managers' Association. On behalf of the Committee on Uniform Street and Sanitation Records, representing the International Association of Public Works Officials and ten other national agencies, the same staff has already installed records and accounting systems and budgeting procedure for public works in over twenty cities, and has guided more than a hundred cities in adopting the Committee's standard practice.

RESEARCH IN ADMINISTRATION

A Division of Research in Public Administration, with Dr. Russell Forbes as Director, was announced April 22 by the Department of Government of Washington Square College, New York University. In addition to its research activities and the training of undergraduate and graduate students for public service, the new Division plans as soon as practicable to undertake at the request of public officials or organized citizen groups surveys of specific problems affecting the organization and administration of New York City and other governmental units in the metropolitan region, and to conduct annual one-week intensive courses in municipal administration for the benefit of 30,000 public officials of the New York metropolitan region.

DR. CHARLES H. PARKHURST

The Rev. Dr. Charles H. Parkhurst, militant New York crusader of the Nineties and for a generation one of the moral leaders of the city, died at the age of 91 in September. Once referred to by Joseph H. Choate as "the moral ruler of the town," he won fame a generation ago as a reformer and a relentless foe of vice in a bitter conflict with the forces of corruption in New York City which he described as "a fight with Tammany" In 1890 Dr. Parkhurst preached a sermon on municipal politics that impressed Dr. Howard Crosby, president of the Society for the Prevention of Crime, who induced the clergyman to become a member and director of the society. On April 30, 1891, after Dr. Crosby's death, Dr. Parkhurst was elected president of the society. He at once began a thorough survey of the vice situation. In February, 1892, from his pulpit in the Madison Square Presbyterian Church, he delivered his famous sermon, the echoes of which reverberated throughout the English-speaking world, denouncing the corruption of the Tammany government of the city and striking out fearlessly at men in high places. The effect of his pronouncements was cyclonic in New York. He was called before the grand jury, but his charges were not sustained. Undaunted, he set to work anew to gather material for another sermon, the facts of which should be beyond question. With detectives he began a tour of all the places of ill repute to which he could gain access, penetrating the notorious ''Tenderloin'' district to gather evidence of violations of the excise, anti-gambling and social laws. The results were given to the public in another stirring sermon, fortified by names and affidavits. In March, 1892, he was again summoned before the grand jury, and the jury found indictments and a presentment charging the police with collecting blackmail in New York amounting to $7,000,000 a year. The Chamber of Commerce finally took part in the fight, adopting a resolution calling for a legislative investigation of conditions. The Lexow committee was the result. The committee's investigation showed that in 1891, 1892 and 1893 the police had worked together in casting fraudulent votes. On the heels of these and other revelations came the formation of the Committee of Seventy and the great defeat of Tammany on Nov. 6, 1894.

METROPOLITAN AND REGIONAL PLANNING

By John Nolen, Jr.

Director of Planning, National Capital Park & Planning Commission

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EXPANDING SCOPE OF PLANNING

In contrast to the relatively inactive state of regional planning at the low point of the depression, there is now nation-wide evidence that the planning idea on a more extensive basis is receiving influential support as one of the necessary steps back to a permanent recovery. The new planning is being rapidly accepted and well organized as one of the dominant forces in the new social and economic order. Few advances made since the War in the expansion of public functions have suffered during the depression more heavily than regional planning and come back with such a strong and irresistible impulse for new and necessary service.

LEADERSHIP OF THE FEDERAL GOVERNMENT

Influence of the President.—In aiding recovery of regional planning the Federal Government has been first to move under the personal leadership of President Roosevelt, whose practical case for the value and need of planning is forcefully presented in his book *Looking Forward.* The subsequent selection of resourceful and constructive administrators has enabled the President to bring into working reality many of the planning principles he advocates.

Tennessee Valley Plan.—Early in the emergency session of the new Congress, permanent legislation created the Tennessee Valley Authority, vesting for the first time in a national body the duty of planning for the development of a physically delineated interstate region. Although primarily providing for the development of the natural resources of the Tennessee Valley, the Act recognized the necessity to serve the general welfare of the people by providing for a central agency to foster an orderly and proper physical, economic and social development in accordance with general plans prepared in coöperation with state and local governments.

National Planning Board. — The public works section of the National Industrial Recovery Act has provided the best opportunity for a practical demonstration of the service of regional planning. In order to provide for a ''comprehensive program of public works,'' the President created in July a National Planning Board to whom was entrusted the duty of formulating a long-range plan on a national scale with which the immediate program necessitated by the present emergency would be consistent. The Board is advisory to the Public Works Administrator and coördinates and guides the Administration's planning activities in the ten regional areas into which the country has been divided. It stimulates the aims and accomplishments of state, regional and local planning bodies, thus encouraging local initiative and responsibility as the first step in the formulation of state and national plans.

Regional Advisers. — Under this leadership and with the active coöperation of the state Public Works Administrations, the regional advisors have been able to recommend public works projects to Washington which would be consistent with one another and have a definite social as well as economic value. In fact ''the relation of the particular project to coördinated planning and its social desirability'' was one of five practical tests adopted by the Administration in passing on projects. A statement of the attitude of planning commissions on projects was requested, and many commissions submitted definite programs for consideration. Through the regional advisors public interest in regional and general planning was stimulated and its practical value demonstrated.

P. W. A. Coöperation.—The action of the President on Nov. 8 in creating the Civil Works Administration was another practical means of advancing planning activities. Many of the formerly active planning agencies had been paralyzed for lack of adequate funds and were hard pressed to be of service in the emergency. Although somewhat restricted in the kind of work permitted, mapping and surveys of basic character were particularly advocated and much constructive work has been undertaken. As a further stimulant to planning activity the Public Works Administration in November allotted the National Planning Board $250,000 to aid in the preparation of state and regional plans. The program contemplates sending to selected planning agencies qualified technical advisers who will stress the need for practical planning and otherwise help to organize and direct the work which will be finally coordinated by the Board at Washington.

Land Planning Committee. — Another agency, the National Land Use Planning Committee, sponsored by two Federal departments, has conducted research and provided for a forum of ideas in the problems of rural land use planning. Formed of government officials and representatives of land grant colleges, this Committee has been endeavoring to relate the complicated economic and physical aspects of effective land utilization to a practical procedure for bringing about desirable changes. Through bulletins and publicity the Committee has directed attention to the rural phases of regional planning. This Committee has recently been superceded by a Land Planning Committee of the National Planning Board, named by the Secretaries of Agriculture and Interior.

STATE PLANNING

New Planning Boards.—It is increasingly evident that the state is becoming recognized as the proper agency for large scale regional planning since its functions, latitudes and resources are suitable for practical results. With not a single official state planning board charged with the duty of preparing a comprehensive plan in existence at the beginning of the year, two states, South Carolina and Virginia, have since created planning boards. Although the Illinois Board of last year was abolished, a new board is authorized and its appointment expected. The Iowa Conservation Plan has been completed and offers a 25-year program for the wise human use of the state's natural resources. Activity in other states presages additional state planning bodies to come.

Expanding Activities of States.—Once the value and economy of a comprehensive State Plan is realized, rapid progress can be made. Already 14 states have functional planning of various state activities as reported by the National Planning Board. These are California, Connecticut, Iowa, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Rhode Island, Texas, Vermont and Wisconsin. Their scope ranges from highways to flood control, from conservation to reclamation, and from recreation to land utilization. Typical of functional planning, the Governor's Agricultural Advisory Commission in New York has undertaken a land use survey, including physical, economic and social factors. In Michigan the earlier land use and taxation studies have been carried further by the Department of Conservation. A number of states have also formed special boards for advance planning of public works for emergency relief of unemployment. Such functional and specialized activity forms the groundwork for comprehensive state plans.

New England and New Jersey.—Of potential importance is the interest being shown by the New England Council in advancing a proposal for a New England planning organization. This closely knit group of states has many common problems which merit comprehensive consideration. Both Massachusetts and New Hampshire have for some time been considering State Planning which might well proceed concurrently with a New England plan. There is equal promise in New Jersey for a permanent State Planning Board recommended in the reorganization plan of the state government.

The West.—In the far West, some activity is on an interstate basis. The four states of Idaho, Montana, Oregon and Washington, a regional public works group, have organized a Northwest Planning Conference to consider a comprehensive program centering about the proposed Columbia Valley Authority and other Federal projects of extensive influence. In the Central Southwest, the states adjacent to Colorado are becoming planning conscious on a state-wide basis. Utah has legislation authorizing a State Plan as part of its emergency program.

REGIONAL PLANNING

Surveys.—The annual survey made by the Division of Building and Housing of the Department of Commerce revealed 82 organizations engaged in regional planning at the beginning of the year. Of these, 59 were official commissions created by legislative authority, 46 being county commissions. There were 23 unofficial organizations acting in a voluntary advisory capacity. Of the 20 states embraced, five had over two-thirds of the organizations, being led by 26 in California and 12 in New York. In a subsequent survey made by the National Planning Board to establish the status of planning, returns were received from about half of the listed agencies, from which much of the following information has been garnered. One-third of the agencies reported no funds for 1933 and only 20 per cent had over $15,000 each. In spite of this unusual fiscal situation, 44 per cent of the regional and county planning organizations reporting were rendering active assistance on local emergency public works programs. Nearly one-quarter reported existence of comprehensive plans.

Metropolitan Centers. — 1933 has been a slim year for important accomplishment in regular planning work in metropolitan areas, due largely to lack of funds and general public psychology. However, in several localities the emergency contribution of planning organizations has been extensive and noteworthy in contrast to the meagreness elsewhere. In New York the Regional Plan Association has made available its completed regional plan to the three State Engineers and the Regional Advisor of the Public Works Administration.

Several of the major projects comprehended are going forward with funds allotted. The executive director of the Philadelphia Regional Planning Federation has been made Civil Works Administrator for that area, thus indicating the type of practical service that can be rendered. Minneapolis and St. Paul are coöperating and have undertaken an extensive survey program with Civil Works funds. Los Angeles County Regional Plan Commission has had several hundred constructively employed under similar circumstances. The Chicago Regional Plan Association besides coöperating in the formulation of public works programs, is preparing its plan for publication. In Washington, the National Capital Park and Planning Commission drew up in May for the advice of appropriate authorities a comprehensive program of public works, many items of which have since been undertaken. This Commission has been particularly active in coördinating and planning details of several of the projects adopted. The nearby Maryland Commission has made material progress in park development and asked for a $250,000 Public Works fund for further work.

COUNTY PLANNING

Denver and San Diego.—Several county commission have been unusually active. In the west a regional plan for an area 50 miles square, embracing the city and County of Denver, is ready for approval of the Planning Commission. It includes population studies, natural resources, industries, traffic arteries, water supply, flood control and recreation areas. San Diego County has adopted the Planning Commission's report on a proposed 200 mile scenic parkway connecting established state and national recreation areas.

Ohio.—The Hamilton County Planning Commission through the coöperation of municipalities, is getting its major thoroughfare plan adopted and officially recorded. Park plans have been presented to the newly formed County Park District, as has also a public work program to the County Commissioners. The Lucas County Planning Commission, in affiliation with the Toledo City Plan Commission not only submitted the original public works program, but raised funds to employ 33 engineers, whereby it handles the enginering for the Metropolitan Park Board, CCC camps, and passes on all public programs. An extensive housing survey is under way and subsistence homestead projects are being planned.

Connecticut.—The Fairfield County Planning Association has presented its plan for parks and parkways, major thoroughfares and related elements, and is coöperating with state agencies concerned. The County Plan is 50 per cent complete.

Wisconsin. — The construction work undertaken by CCC camps near Milwaukee is planned and supervised by the County Planning Commission. The state law provides for rural planning committees for the study of land classification, development of recreation areas and general county planning, including the amenities.

California.—Similar work is being done in the 25 California counties where official commissions, many without funds, have given particular attention to zoning and planning.

THE GENERAL OUTLOOK

This year has seen the geographic concept of the regional planning function expand rapidly. Instead of limited to metropolitan and county areas, the horizon today includes state and interstate regions all coördinated on a national basis. Moreover, the function is receiving increasing official sanction and being recognized as an essential part of public enterprise. Regional planning on a state and national scale is destined to become a permanent influence in future governmental organization.

ZONING

By H. M. Olmsted

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VARIANCES DENIED IN MARYLAND

Power on the part of a board of appeals to grant variances from the strict provisions of zoning ordinances is widely accepted as proper. The existence of such boards, with discretion to alleviate unnecessary hardships, is by many considered an important adjunct to the right of municipalities under the police power to establish zones within their areas, such zones being restricted to different limitations as to use of land, height of buildings, proportion of open spaces, etc. And this power of the Appellate Boards has been looked upon as strengthening the legal position of zoning by enhancing the reasonableness of zoning ordinances.

However, in April, 1933, the Maryland Court of Appeals denied this power in the case of Lugar *v.* North Baltimore Methodist Protestant Church (165 Atl. 703). The Baltimore Board of Zoning Appeals had granted a variance to the plaintiff, giving permission to convert a residence, in a residential use district, into a confectionary and delicatessen store. The case was appealed from the Baltimore City Court, which had decided in favor of the defendants. The Court of Appeals declined to take jurisdiction, but nevertheless stated that the ordinance provision giving the Board of Zoning Appeals the right to vary the strict letter of the zoning ordinance where practical difficulties or unnecessary hardships were involved, is contrary to the state constitution. In commenting on this case, Mr. Frank B. Williams, author of *The Law of City Planning and Zoning,* said in his "Zoning and Planning Notes," in *The American City* for July, 1933: "The rule accompanying the grant to boards of appeals of power to vary zoning ordinances in this case is that variances shall be in specific cases for the relief of practical difficulty or unnecessary hardship; that the spirit of the ordinance shall be observed, public safety and welfare secured, and substantial justice done. Heretofore in all the states in which the question has come before the courts, except Illinois (Welton *v.* Hamilton, 176 N.E. 333), it has been held that this rule was sufficiently precise and definite. In the present case Maryland aligns itself with Illinois in deciding the contrary. It is worth noting that in both Maryland and Illinois administrative bodies exercise without challenge the power to fix the rates of various public utilities, the rule guiding them in so doing being that these rates shall be reasonable. To the writer the zoning rule which these states reject seems at least as precise and definite."

EFFECT ON VALUE

The effect of zoning upon property values is, of course, an important factor and creates legal difficulties from time to time. Two recent cases of some importance bear upon this. The first is City of Beverly Hills *v.* Auger (15 Pac. 2nd, 867), decided by the California District Court of Appeals Oct. 28, 1932. In this case the defendant land-owner sought to exclude the zoning ordinance as evidence with respect to value in a condemnation proceeding. The court held that the ordinance was admissible. The defendant claimed that the ordinance lessened the value of the land, and as it was subject to repeal, the value should be based upon all possible uses regardless of the ordinance. However, there was no evidence that the restriction lowered the value of the land; the contrary is often the case.

Another case involving the question was MacEwen *v.* City of New Rochelle and County of Westchester (Supreme Court, Westchester County, Sept. 30, 1933). This also involved a condemnation proceeding. It was claimed that a restriction to one-family residences made the value of a tract of land $30,000 as compared with $53,000 or more if the land could be used for apartments. The court ruled that the zoning ordinance was valid and upheld the award of $30,000.

GAS WELLS

The right to exploit natural resources under the land is sometimes involved in connection with zoning restrictions. In March, 1933, the Oklahoma Supreme Court in the case of Anderson-Kerr, Inc., *v.* Van Metor (19 Pac. 2nd, 1068), held that a city ordinance prohibited the drilling of gas wells within 300 feet of the outer line of an oil and gas drilling zone was constitutional, and a refusal of the board of adjustment to grant a variance in this respect was not an improper exercise of discretion.

NON-CONFORMING USES

When zoning ordinances are established, non-conforming use of land in the various zones is frequently permitted to continue, but when such ceases it cannot be resumed without violating at least the spirit of the ordinance. In the case of Town of Darien *v.* Webb, the Connecticut Supreme Court on Oct. 26, 1932, decided that a reversion to a non-conforming use should not be permitted, even though the zoning ordinance did not specifically state that the right to a non-conforming use terminated when such use ceased. On the other hand, the New Jersey Supreme Court on Sept. 15 1933, in the case of Provident Institution for Savings *v.* Castle (168 Atl. 169), held that a landowner is entitled to a permit to repair a building in order that it can again be put to a non-conforming use which it served at the time the zoning ordinance was passed.

TRANSITION ZONING

Special provisions for a more gradual change from the requirements of one zone to those of another, constitute a zoning refinement which has become fairly wide-spread. This device, known as transition zoning, takes many forms, and is in effect in two-fifths of the zoned cities in the United States, according to Arthur C. Comey, Assistant Professor, Harvard School of City Planning. Prof. Comey is the author of *Transitional Zoning,* which appeared in 1933 as the fifth publication in the series of "City Planning Studies" of the Harvard School.

COUNTY ZONING

In May, 1933, the board of supervisors of Oneida County, Wisconsin, approved a county zoning ordinance, regulating the use of agricultural, forest and recreational land. This county has been faced with a serious problem as to the proper use of marginal agricultural lands. Previously the various county subdivisions affected had ratified the ordinance, through action of the town boards. This is said to be the first county in the United States to undertake county zoning of this broad character.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Civic Assn., 901 Union Trust Bldg., Washington, D. C.

American Legislators' Assn., Equitable Bldg., Denver, Col.

American Municipal Assn., 923 E. 60th St., Drexel Ave., and 58th St., Chicago, Ill.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

AMERICAN SOCIETY OF MUNICIPAL ENGINEERS, 3817 Olive Street, St. Louis, Mo.

GOVERNMENTAL RESEARCH ASSN., 722 Jackson Place, Washington, D. C.

INTERNATIONAL CITY MANAGERS' ASSN., 850 E. 58th St., Chicago, Ill.

NATIONAL ASSN. OF CIVIC SECRETARIES, Wm. Penn Hotel, Pittsburgh, Pa.

NATIONAL CIVIL SERVICE REFORM LEAGUE, 519 Fifth Ave., New York City.

NATIONAL INSTITUTE OF PUBLIC ADMINISTRATION, 302 E. 35th St., New York City.

NATIONAL MUNICIPAL LEAGUE, 309 E. 34th St., New York City.

DIVISION VI

TERRITORIES AND SPHERES OF INFLUENCE

ALASKA AND HAWAII

By Stuart Godwin

Director of Information, U. S. Department of the Interior

ALASKA

Foreign Trade. — Alaskan commerce continued to decline in 1933, as compared with 1932 and 1931. Imports decreased $272,695. Exports totaled $38,894,718, as compared to $48,306,470 in 1932. Exports of gold alone showed an increase, the figure for 1933 being $9,406,702, as compared to $8,385,546 for the previous year, an increase of $1,021,156. Alaska maintained a favorable trade balance, although it amounted to only $9,139,057, as compared with $27,706,714 in 1932 and $30,980,672 in 1931. The value of canned salmon shipped amounted to $22,432,218, a decrease over the year before of $7,481,128.

Finance.—Cash on hand in the territorial treasury Dec. 31, 1932, amounted to $271,433.46, as compared to $298,920.92 the year before. The combined resources of territorial and national banks at the close of business June 30, 1933, were approximately as follows: capital, $890,000; surplus and undivided profits, $840,500; deposits, $9,668,000. Approximate comparable totals for the year previous were: capital, $890,000; surplus and undivided profits, $787,500; deposits, $10,331,700. During the year consolidation of two territorial banks was effected at Cordova, but no new ones were organized, leaving eleven territorial and four national banks doing business.

Fisheries. — Fewer establishments and persons were engaged in this industry this year as compared to last, but the output of fishery products increased, due primarily to increased production of herring and resumption of operations by one of the whaling stations. There was also an increased output of clams and crabs. Although salmon products decreased somewhat over the previous year, the output was above the general average. The continued decline of prices, however, reduced the total value of fishery products to its lowest point since 1921. Salmon runs were abundant except in a few localities, and no drastic changes were needed in control of commercial fishing. Control of the fishing grounds was maintained and attention was given not only to securing adequate escapement of salmon in all localities but also to removal of obstructions which hindered the ascent of salmon to the spawning grounds and to destruction of predatory fish which feed on young salmon. This last work will be expanded next year. The value of canned salmon shipped amounted to $22,432,218, as compared to $29,913,346 for the previous year, while all other fish and fish products shipped, exclusive of aquatic furs, amounted to $3,410,731, as compared to $4,248,440 the year before. The herring fishing industry showed an increased quantity, but declining prices dropped the total value of the products below the preceding year. Twenty-seven plants were operated, two less than in the previous year. Those employed increased from 730 to 819. The total value of herring products in 1932 was $1,173,158, as against $1,227,896 in 1931. In the whaling industry, 114 persons were employed. The whales taken totaled 270, the products having a total value of $91,133. The whaling station at Port Hobron was reopened and operated during the year.

Furs.—A total of 49,336 fur seal skins were taken in operations at the Pribilof Islands, 188 less than in the previous year. Of this total, 39,490 were from St. Paul Island and 9,846 were from St. George Island. Killings were confined as far as possible to 3-year-old male seals, a suitable number being reserved for breeding, 1,200 on St. Paul Island and 1,809 on St. George Island being marked for this purpose. In this reserve also are many 3-year-old seals that were not taken up in the drives. Despite the large number of seals killed, the annual computation of the herd, as of Aug. 10, 1932, after the completion of commercial killing operations, showed there were 1,219,961 animals, an increase of 92,879 over the number computed the preceding year. In this herd in 1910 there were but 132,000 seals. The skins brought a total of $698,375. There were sold at public auction 1,401 blue and 25 white fox skins taken on the Pribilof Islands, bringing a total of $32,488.

Minerals.—The total value of the mineral production of Alaska since the first year that records were kept—1880—to the end of 1932 was more than $653,000,000. The production value rose steadily from $6,826 in 1880 to a peak of $48,386,508 in 1916. Since then it has declined more or less steadily to 1932, showing a total production value in that year of $11,638,000, the lowest figure recorded since 1904. Of the mineral wealth produced in Alaska since 1880, gold is responsible for $409,033,000, copper for $214,680,000, silver for $12,063,000, coal for $8,443,000, lead for $1,944,000, tin for $1,094,000, and marble and other products, including platinum metals, for $5,972,000. The output of gold last year showed an increase in quantity and value over 1931 of 493,865 ounces, valued at $10,209,000, as compared to 459,000 fine ounces, valued at $9,507,000, in 1931. Copper, however, showed a sharp drop in the amount of metal mined. Only ore estimated to produce 8,738,500 pounds of copper was mined, valued at $550,500, as compared with ore estimated to produce 22,614,000 pounds of copper, valued at $1,877,000, mined in 1931. One encouraging sign was the platinum recovered by placer operations. The largest amount of this platinum sold during the year came from several streams in the Goodnews Bay district. Indications are that a more thorough investigation of this field is well warranted, but with little probability that bonanza deposits which can be worked easily occur there. During the year there was no petroleum prospecting, due largely to the over-supply from many fields in the United States and the consequent low price at which oil could be imported into Alaska.

Railroads.—The total deficit for rail and river boat operations of the Alaska Railroad was $259,436, a decrease of $144,327, or 35.75 per cent, as compared with the year before. A new steamer replaced the two river boats operating between Nenana and Holy Cross, with bi-weekly extension to Marshall. Rail line passenger fares, which were increased to 10 cents per mile early in 1931, were reduced to 6 cents per mile on Dec. 15, 1932, that rate remaining in effect. The number of rail line revenue passengers carried decreased from 22,568 in 1932 to 13,117 in 1933. However, rail line freight totaled 97,479 tons, as compared to 87,053 tons for the previous year. Of these amounts, coal made up, respectively, 72,007 tons and 60,783 tons.

Aviation.—Commercial aviation in Alaska has grown in 10 years from one experimental air mail contract to carry mail from Fairbanks to McGrath, a distance of 300 miles, to the point where there are now 74 landing fields and hydroplane platforms. The first air mail trip on the 300-mile route was accomplished in 2 hours and 45 minutes, as compared to the 17 days used up by the dog sled method on each prior trip. Forty-two planes were in service during the year, as compared to 31 in 1932, plane miles flown totaling 1,059,155, as compared to 742,854 in 1932. The number of passengers carried increased from 6,637 in 1932 to 7,743. Freight, express, and mail carried totaled 785,586 pounds as compared to 496,680 in the previous year. There was but one disastrous accident in the year's flying, the cause of which is unknown. A pilot new to the Territory crashed on his first flight, losing his life and that of his passenger.

Education.—The Territorial and Federal governments coöperate to provide adequate school facilities to children in all sections of Alaska. The public schools, which provide for the education of white and mixed-blood children, are supported largely by appropriations from territorial funds, augmented by 25 per cent of the ''Alaska Fund'' which is made up of a variety of Federal taxes collected in Alaska. This fund nets the schools approximately $50,000 annually. Schools within incorporated cities and incorporated school districts receive from 20 to 30 per cent of their operating costs from local taxes, the Territory providing the balance, but all funds for support of rural schools are furnished by the Territory. The question of public school education is complicated by the distribution of children in widely separated communities and by the transportation and communication facilities being inadequate or almost wholly lacking in many regions. The seasonal nature of many occupations in the Territory and the more or less nomadic life of natives in the interior complicate the problem considerably. The Alaska Agricultural College and School of Mines, located at College, near Fairbanks, at its eleventh annual commencement in May last awarded nine diplomas, one in business administration, four in civil engineering, one in general science, one in geology and mining, one in metallurgy, and one in mining engineering. In addition there were awarded three certificates for completion of a 2-year non-specialized course for teachers. This college carries on coöperative extension work as well.

Health.—Although funds available for medical work among the natives of Alaska were decreased, the amount of work accomplished has been increased. This has been done by bringing medical service to the natives in several localities where it had not been available before, and in other localities where it was necessary for natives to go many miles for medical attention. All hospitals have been given travel allowance, permitting the physicians and nurses to bring medical work to villages in the vicinity. A new 20-bed hospital has been constructed at Unalaska to fill a long-felt need of the natives in the Aleutian Island and Alaska Peninsula region. The fruits of the work of the present and former years are seen in the fact that no severe epidemics were reported during the year, only the prevalence of whooping cough in southeastern Alaska requiring special attention. The early use of serum immunized many villages completely. This service for the natives was supplemented by activities of the Federal Public Health Service, the majority of the beneficiaries of their operations being merchant seamen. School teachers were supplied with simple medicines where a nurse or a doctor was not readily available. The facilities of the medical service were greatly expanded in emergencies by airplanes and coast guard cutters.

Reindeer. — When reindeer were first introduced into Alaska in 1891, the total importations numbered 1,280. Reindeer now are found from Point Barrow to Kodiak Island and along the Alaska Peninsula. Current estimates indicate a total of 500,000 animals today. The Government still owns about 10,000, widely scattered, which can be drawn upon to furnish stock for any village in need. Conditions among the reindeer are almost identical with cattle conditions in the West prior to the days of fencing, in that the reindeer are free to roam as they choose. Mountains and rivers do not restrain them, and in recent times they have traveled to an unprecedented extent. The result is that the herds have disintegrated to the point where animals may be observed on the range in any numbers from one up. This condition will continue. The extent of the drifting and mixing and the inability to control herds have rendered individual ownership less significant and group action more necessary. As a matter of policy it has been determined that the Government will not transfer reindeer meat to the states, entering into competition with private enterprise, but will market the carcasses only in Alaska.

HAWAII

Foreign Trade. — Hawaii continued to maintain its favorable balance of trade, although both exports and imports fell below the figure for the previous year, measured in terms of value. Exports totaled $83,448,296, while imports totaled $63,556,022. This is roughly a decrease of $19,300,000 in value of exports and $23,400,000 in value of imports, as compared with the previous year. More than 99 per cent of Hawaii's export trade is with the United States, while more than 91 per cent of the imports are received from the United States. Production of sugar, the principal industry of Hawaii, set a new all-time record during the year, 1,025,354 short tons being produced. Production of pineapples, second industry in the Territory, was sharply curtailed due to overproduction in the few years immediately preceding. The value of pineapples exported during the calendar year 1932 was little more than half the value of the export crop during the preceding two years.

Revenues.—Customs receipts for the fiscal year 1933 were $1,408,871, a slight decrease under 1932. In the same period internal revenue collections totaled $3,067,249, a decrease of about $700,000 under 1932.

Population. — The population of the Territory on June 30, 1933, as estimated by the Board of Health, was 380,211, a decrease of 296 persons as compared with the figures for the previous year. Of the total, more than 60,000 are Philippino wards of the United States, and the decrease in population is accounted for by the fact that about 5,000 returned to their native land because of the depression in the principal agricultural industries of the Territory.

Sugar.—Production of raw sugar computed from the harvest of Sept. 30, 1932, was 1,025,354 short tons, the second successive year for greater than a million ton production. Although the price was again low, fortunately there was some improvement over the 1932 price for sugar harvested in 1931. Sugar was again the mainstay of the Territory from an industrial and employment point of view. Rates paid labor on sugar plantations indicate that Hawaiian labor was better situated than similar labor on the Mainland, especially when consideration is given to the fact that work is provided throughout the year. There were no labor disturbances on sugar plantations during the fiscal year. Discussions not yet completed at the time of this writing are seeking to arrive at a marketing agreement under the Agricultural Adjustment Act which will guarantee a better balance between supply and demand.

Pineapples.—The value of pineapples exported during the calendar year 1932 was only $20,945,359 as compared to $36,177,942 in the previous year and nearly $40,000,000 in 1930. Years of over-supply caused this sharp drop. However, territorial pineapple growers and canners are experimenting with various varieties of hybrid pineapples. These to the number of 80 have been canned and are judged superior to the Smooth Cayenne Checks, adding a distinctly new chapter to the history of the industry. These new varieties will now be tested for resistance to pests and diseases, for plant food requirements, susceptibility to iron chlorosis, and for growth habits under various conditions of temperature, rainfall and altitude. From these tests it is hoped to develop fruit of higher quality, better taste, and more weight. At the same time acid and sugar ratios of pineapples are being studied in connection with the crossing of various varieties.

VI. TERRITORIES AND SPHERES OF INFLUENCE

PUERTO RICO

By Creed F. Cox

Brigadier General, U. S. A.; Chief, Bureau of Insular Affairs, War Department

GOVERNMENT

Political Status.—Puerto Rico has been held by the Supreme Court to be non-incorporated territory of the United States, a status differing from that of those Territories which have been incorporated in the Union. The present system of government is prescribed by the Act of Congress of March 2, 1917, known as the Organic Act for Puerto Rico. Supreme executive power is vested in the Governor who is appointed by the President by and with the advice and consent of the Senate. In the same way are appointed the Attorney General, the Commission of Education, the members of the Supreme Court, and the District Judge, District Attorney, and Marshal of the District Court for Puerto Rico. The Auditor is appointed by the President. The power of appointment of the other officials of the insular government rests with the Governor. The heads of the seven governmental departments form collectively a council to the Governor known as the Executive Council. Local legislative powers are vested in a Senate and a House of Representatives chosen by the electorate of the Island. The judicial system includes, in addition to subordinate courts, both the Supreme Court of Puerto Rico and the District Court of the United States for Puerto Rico. Provision is made for appeal, in certain cases, from judgments of the Supreme Court and the District Court to appropriate higher courts, including the Supreme Court of the United States. Except as otherwise provided, the statutory laws of the United States not locally inapplicable are in effect in Puerto Rico. The Island is represented in the United States by an elected Resident Commissioner who occupies a seat in the U. S. House of Representatives with the right to debate but not to vote. Citizens of Puerto Rico are citizens of the United States.

Governorship.—James R. Beverly resigned as Governor effective June 30, 1933. He was succeeded by Robert H. Gore who assumed the duties of office July 1, 1933.

The Legislature.—The Puerto Rican Legislature was in session for three periods during the year covered by the report of the Governor. Special sessions were called for the periods Oct. 18 to 21 and Nov. 11 to 16, 1932, to consider means for relief and rehabilitation necessitated by the hurricane of Sept. 26-27, 1932. The first regular session of the Thirteenth Legislature convened Feb. 13, 1933, and adjourned April 15. Among the more important measures enacted during these three sessions were acts authorizing the contracting of loans from the Reconstruction Finance Corporation for relief and rehabilitation work, authorizing the Treasurer to borrow money temporarily as an advance of taxes, amending the act authorizing municipalities to issue credit certificates to permit the issuance of such certificates to any creditors of the municipalities, amplifying the insurance law to facilitate hurricane insurance on crops and plantations by permitting the rendering of this service by individual insurers under the Lloyds plan, and regulating banks and banking in Puerto Rico.

Quadrennial Election.—The regular quadrennial elections for the Island were held Nov. 8, 1932, and resulted in victory for the coalition formed by the Union Republicana and Socialist parties, which elected their candidates for Resident Commissioner to the United States, gained control of both houses of the Legislature and of all but 26 of the 77 municipalities. This was the first election in which women voted, and for this and other reasons created more than ordinary interest. The Governor observes that the election was probably the fairest and most orderly in the history of the Island.

ECONOMIC CONDITIONS

Annual Report. — The Governor states in his annual report: "The Island had closed the previous year in a fairly good economic condition in spite of the severe depression, but during the year under consideration conditions were becoming gradually worse and the amount of unemployment was increasing slightly. Partly as a result of the storm and partly from other conditions, the situation in the Island became progressively worse from September 27 on."

Hurricane Damage.—The hurricane affected all activities in the Island and had far-reaching effects on agriculture, finance, and especially on the condition of the laboring classes. Deaths caused directly by the storm numbered 257, and more than 4,820 were injured. The estimated property damage amounted to $35,568,345.

Agriculture.—Severe crop damage was sustained in the hurricane area in the northern and eastern sections of the Island, resulting in reduced production for most crops, especially citrus fruits and pineapples, most of the cultivation of which is carried on in the affected area. The agricultural extension program to which the Puerto Rican government has devoted much of its effort was greatly retarded, both because of the destruction of experiments and because funds were diverted from their normal functions and applied to relief work. Special attention during the year was directed to the fostering of domestic gardening. The addition of 1,000 acres brought the total acreage under the jurisdiction of the insular forest service up to 38,000. This is in addition to the 15,000-acre Federal reservation of Luquillo.

External Trade. — The following table shows the movement of external trade by value:

	Year ending June 30		
	1900	1932	1933
Received from the United States	$6,952,114	$52,826,794	$48,886,844
Shipped to the United States	3,350,577	83,645,863	73,387,498
Received from foreign countries	3,037,391	8,454,307	5,858,867
Shipped to foreign countries	3,261,922	2,771,075	2,018,957
Totals	$16,602,004	$147,698,039	$130,152,166

The Island maintained the usual favorable balance of trade, although this balance declined from $25,135,837 for 1932 to $20,660,744 for 1933. The total trade of the Island with the United States and foreign countries declined about 12 per cent. Trade with the continental United States represented about 94 per cent of the total external trade of the Island. Shipments to the United States comprised 97 per cent and shipments from the United States 89 per cent of the total. The purchases of Puerto Rico from the United States represented $30.11 per capita as against $3.23 per capita for the Philippines and $140.73 per capita for Hawaii. As a buyer of goods from the United States, Puerto Rico ranked first for foreign countries in the Caribbean and South America, and eighth with respect to the world at large.

Finance.—The year ended June 30, 1933 closed with a deficit of $1,083,263. Total insular revenues amounted to $9,374,358, a decrease of $3,288,002 from those of the preceding year. The general economic depression and the hurricane were the major factors in the decrease in revenues, the most serious drop being in excise taxes. Income taxes showed an increase due to the collection of back taxes. The bonded indebtedness of the Government amounted to $28,542,000 on June 30, 1933, compared with $28,761,000 on June 30, 1932. Bonds aggregating $846,000 were issued during the year; bonds totaling $1,065,000 were redeemed. Taking into consideration both bonds outstanding and sinking funds, there is indicated a net decrease of $135,266 in the funds required to satisfy the principal of the bonded indebtedness. The total indebtedness of the municipalities as of June 30, 1933, was $17,861,043, plus interest accrued and payable amounting to $38,193, making a total of $17,899,236, an improvement over the preceding year of $1,023,313.

EDUCATION

The total enrollment in the public schools for the year 1932-1933 was 233,457 as compared with 229,169 for the preceding year. There were in operation 23 public high schools, 4 incomplete high or continuation schools, 282 elementary urban, 1401 elementary rural, and 39 second unit rural schools. The teaching staff numbered 4638. The policy of eliminating the continuation schools was adopted, it being believed that the 23 high schools will meet the present demand for secondary education in the Island. What is apparently a great reduction in the number of elementary schools, especially rural schools, from last year, is in reality due to the adoption of a new definition of the term ''school'' to conform with the usage of the Federal Bureau of Education. School lunch rooms in operation during the year numbered 770, which served a daily average of 29,958 children. Total expenditures for public education amounted to $5,259,411, of which $4,098,470 came from insular and $1,160,941 from municipal funds. There were 41 private schools accredited by the Department of Education with an enrollment of 7,034 children and 369 teachers, and in addition 33 private schools not so accredited, with an enrollment of 1,858 students and 77 teachers.

HEALTH

The general death rate for the calendar year 1932 was 22.3 per 1000 population as compared with 20.4 for 1931. Typhoid fever, diphtheria, malaria, and whooping cough showed a decreased death rate during the year, as compared with 1931, but increases were recorded in most of the remaining important causes of death. The proportion of deaths from tuberculosis constituted 13.4 per cent of the total deaths.

Two new health units were inaugurated, bringing the number in operation at the close of the fiscal year up to 19, covering 23 municipalities and a total population of 926,519. A vigorous campaign was conducted against impure milk. The Commissioner of Health reports an increased production of 15,198,487 liters of milk over 1932 and also an increased consumption of beef, pork, and mutton of 41,342 hundred weights. The Rockefeller Foundation and the Puerto Rico Child Health Committee of New York continued to contribute financial and other assistance in health work and nutrition.

PHILIPPINE ISLANDS

By Creed F. Cox

Brigadier General, U. S. A.; Chief, Bureau of Insular Affairs, War Department

GOVERNMENT

Political Status.—The status of the Philippine Islands differs in certain respects from that of those territories which have been incorporated into the Union. The U. S. Supreme Court has held that the Philippines were not territory ''which had been incorporated in the Union or become a part of the United States, as distinguished from merely belonging to it.''

Citizens of the Philippine Islands owe allegiance to and are under the protection of the United States, but are not, in general, citizens of the United States. The Islands are represented in the United States by two Resident Commissioners elected by the Philippine Legislature who have seats in the House of Representatives with the right to debate but not to vote.

The Executive.—The present governmental system is prescribed by the Act of Congress of Aug. 29, 1916, known as the Organic Act for the Philippine Islands. The Governor General and the Vice Governor (who is *ex officio* head of the Department of Public Instruction) are appointed by the President by and with the advice and consent of the Senate, as are also the members of the Supreme Court, the Auditor and Deputy Auditor. Supreme executive power is vested in the Governor General. He has general supervision and control of all of the departments and bureaus, and, in general, appoints, with the consent of the Philippine Senate, the heads of executive departments and other officials of the insular government. Col. Theodore Roosevelt resigned as Governor General, effective March 24, 1933, and was succeeded by Frank Murphy of Detroit who arrived in Manila and assumed the duties of office June 15, 1933.

Courts and Laws. — The highest judicial authority is the Supreme Court of the Philippine Islands, which has original jurisdiction in certain cases and general appellate jurisdiction as regards the decisions of the subordinate insular courts. Its judgments are, in certain cases subject to review by the U. S. Supreme Court. The statutory laws of the United States do not apply to the Philippine Islands except when they specifically so provide, or it is so provided in the Organic Act.

The Legislature consists of a Senate and a House of Representatives, the members of which are chosen by the electorate of the Philippine Islands, with the exception of those members representing the nine specially organized, so-called "Non-Christian" provinces, who are appointed by the Governor General. In accordance with the terms of the Organic Act, general legislative powers are vested in the Philippine Legislature, with the exceptions that trade relations between the United States and the Islands shall be governed exclusively by laws of the Congress and that acts affecting the tariff, immigration, lands of the public domain, timber, mining, currency and coinage shall not become law until approved by the President. The veto power over local legislation is vested in the Governor General Congress retaining authority to annul such legislation.

PHILIPPINE INDEPENDENCE

The Bill H.R. 7233 "to enable the people of the Philippine Islands to adopt a constitution and form a government for the Philippine Islands, to provide for the independence of the same, and for other purposes," which was passed by the House of Representatives April 4, 1932, was passed by the Senate in an amended form Dec. 17, 1932. The Bill was returned to the House by the President without his approval Jan. 13, 1933 (H. Doc. 524, 72d Cong.), and was finally repassed over the President's veto Jan. 17, 1933, becoming Public No. 311 of the Seventy-second Congress.

Briefly the bill provides for the election of delegates to a constitutional convention which shall meet within one year from the enactment to formulate and draft a constitution for the Government of the Commonwealth of the Philippine Islands; for the submission of the constitution, within two years from the enactment of the Act, to the President of the United States; for its submission, after approval and certification by the President, to the people of the Islands, who, if they ratify the constitution, shall be deemed by such ratification to have expressed themselves in favor of independence; for the election of officers and for the establishment of the Commonwealth Government. Complete independence would be automatically established in the eleventh year after the inauguration of the Commonwealth. Upon acceptance of the bill, restrictions would be placed on immigration of Filipinos into the United States, and, upon inauguration of the Commonwealth Government, the quantities of sugar, cocoanut oil and cordage that might be imported into the United States free of duty would be restricted to specified quotas. Beginning with the sixth year under the Commonwealth, a series of taxes increased yearly on Philippine exports to the United States are required to be imposed by the Government of the Commonwealth of the Philippine Islands, the proceeds to be applied to the reduction of the public debt of the Islands. The United States retains the right to maintain certain military and other reservations in the Islands. The Bill provides that an effort shall be made by the United States to secure the permanent neutralization of the Islands, if and when independence becomes effective.

The concluding section of the bill requires that it "shall not take effect until accepted by concurrent resolution of the Philippine Legislature or by a convention called for the purpose of passing upon that question as may be provided by the Philippine Legislature." As finally enacted the bill retains provisions to which vigorous opposition has been voiced by Filipinos. As a consequence, divisions have arisen among the Filipino leaders and the public on the question of acceptance of the bill in its present form, acceptance with reservations, or rejection. The Philippine Legislature met in regular session July 17, 1933, and this session was largely given over to discussions of the independence bill. In a Concurrent Resolution passed Oct. 17, 1933, the Legislature declined to accept the bill in its present form, expressed its objections to certain features, and provided for the sending of a new mission to the United States with a view to securing amendments to the bill or obtaining new legislation.

PHILIPPINE LEGISLATION

The second regular session of the Ninth Philippine Legislature convened July 16, 1932, and adjourned Nov. 8, 1932. A special session called Dec. 7 was, on Dec. 9, suspended until Jan. 16, 1933, when a second special session was called, extending to Jan. 31. The sessions were distinguished by the attention devoted to means for economic adjustment, looking not solely to immediate relief but to the future self-sufficiency of the Islands. The bills passed numbered 191, of which 146 were approved and 45 vetoed by the Governor General. One bill was vetoed by the President of the United States. Among the more important measures which became law were: An Act reorganizing the department, offices and bureaus of the insular government; a new assessment law; an act imposing heavier penalties for violations of the usury law; several laws in the interest of labor; a law to encourage and protect the fishing industry; laws regulating the relationships of landowners and tenants; several laws amending the tariff law with a view to protecting and developing Philippine agriculture and industry.

FINANCIAL CONDITIONS

The total revenues of the Insular Government from ordinary sources amounted to $28,295,158, a decrease of $4,586,165 (about 16 per cent) from 1931. As during the preceding year, the greatest decline was shown in the sales tax receipts. The ordinary expenditures amounted to $32,860,824, a decrease from the preceding year of $5,349,925 (about 16 per cent). This decrease in expenditures is due in large part to the exercise by the Governor General of the power granted him by the general Appropriation Act to reduce, when necessary, the appropriations authorized therein up to 10 per cent, and of the adoption of other economy measures.

No additional Philippine Government bonds were issued during 1932. On Dec. 31, 1932, the total outstanding bonded indebtedness of the Philippine Islands, consisting of $64,463,500 insular and 9,128,500 provincial and municipal bonds, amounted to $73,592,000. Against this total net indebtedness the Insular Treasurer held bonds of the provinces and municipalities in the amount of $6,509,500, and $14,387,382 accumulated in the various sinking funds. The net insular bonded indebtedness as of Dec. 31, 1932 was therefore $52,595,118.

AGRICULTURE

The area under cultivation differed only slightly from that of the preceding year. With the exception of sugar, there was a decline in production due to adverse weather conditions and plant pests. The increase of 26 per cent in centrifugal sugar production was chiefly due to improved methods of cultivation and manufacture, as the increase in area planted was only about one per cent. Reported deaths of cattle from rinderpest declined to 139, which is the lowest since this disease appeared in the Islands in the late Eighties. Improvement in the condition of the small farmer continued to be a major subject of executive and legislative consideration. Special emphasis was laid on the encouragement of diversification of agricultural products and the production in the Islands of foods which are now being imported in large quantities.

EXTERNAL TRADE

The total external trade of the Philippine Islands with the United States and foreign countries declined to $174,733,166, a decrease from 1931 of $28,417,627, or 13.9 per cent. Exports amounted to $95,338,081, a decrease of 8.3 per cent; imports amounted to $79,395,085, a decrease of 19.9 per cent. The balance of trade in favor of the Islands increased from $4,793,355 for 1931 to $15,942,996 for 1932. As usual this balance was due to the very large favorable balance with the United States, which in 1932 amounted to $31,350,117.

The trade of the Islands with the United States amounted to $133,945,617 (a decrease of 8 per cent), representing 77 per cent of the total external trade, as compared with 72 per cent in 1931. Imports from the United States amounted to $51,297,760 (a decrease of 17 per cent from the preceding year) and representing 65 per cent of the total as compared with 63 per cent in 1931. Exports to the United States amounted to $82,647,867 (a decrease of 1 per cent), constituting 87 per cent of the total exports; the corresponding proportion in 1931 was 80 per cent. The United States was the main source of all of the principal Philippine imports.

EDUCATION

The final figures show the total public school enrollment for the school year 1931-1932 to be 1,213,419 as compared with 1,224,548 for 1930-1931. Of this number 1,135,221 were enrolled in the elementary and 78,198 in the secondary grades. Of the latter 16,839 were in vocational schools. Governor General Roosevelt directed his special attention towards the fostering of a plan for adult education by means of a form of rural conference called the Community Assembly. The interest and enthusiasm with which the first of the assemblies was greeted led the Legislature to enact a law providing for their continuance under the supervision of the Director of Education.

HEALTH

General health conditions are reported as good although a slight increase on the general death rate over that of the preceding year is indicated by the incomplete returns. In Manila, the death rate fell from 25.61 to 24.24 and the infant mortality rate from 151.58 to 139.82. There were no epidemics of consequence. Cholera, which in 1931 caused 784 deaths, was practically confined to the provinces of Samar and Leyte. No cases of smallpox were reported. Incomplete returns indicate a decrease in deaths from tuberculosis, although this disease remains one of the most serious health problems of the Islands. During 1932, 2,596 lepers were detected and isolated; 206 negatives were released.

VI. TERRITORIES AND SPHERES OF INFLUENCE

THE VIRGIN ISLANDS

By Stuart Godwin

Director of Information, Department of the Interior

GOVERNMENT

The Virgin Islands, comprising St. Thomas, St. John and St. Croix, were acquired by purchase from Denmark in 1915. Until 1931 they were under the jurisdiction of the Navy Department. In that year they were transferred to the Interior Department, and since then have had a territorial status, with a civilian governor.

SUGAR PRODUCTION

St. Croix is admirably adapted for raising sugar cane. For 100 years prior to national prohibition in the United States, St. Croix rum, famous all over the world, was the economic salvation for that island. The prospect of resuming this trade has led to optimistic views for the future for this particular island. The Attorney General has decided that repeal of the prohibition amendment does not affect any of the Territories, making necessary Congressional action before the rum trade can be revived. However, preliminary steps to re-establish the business were taken even before repeal became effective. St. John and St. Thomas have coöperated in the production of bay rum, and St. Croix has contributed to this industry to some extent. On St. John, the bay tree, from the leaves of which bay oil is obtained, grows in considerable profusion. The business of pressing out the oil and blending it with alcohol and water is conducted on St. Thomas. St. Thomas is almost entirely dependent at the present for its economic well-being upon tourist trade and bunkering of ships. The latest report of the Governor shows a decline in both these activities. However, the Government is undertaking the erection of a modern hotel on the site of the famous Bluebeard Castle estate. It is hoped to revive the tourist trade. During the year ended June 30, 1933, only three tourist vessels called as compared with eleven the year before. Plans and estimates for construction of a new dry-dock at St. Thomas have been prepared. Final realization of this project, according to the last report of the Governor, would answer the immediate and future employment problem of St. Thomas.

BANKING AND BUSINESS

A new bank must take the place of the one bank of issue in the Islands, the National Bank of the Danish West Indies. Its charter was continued when the United States took over the Islands from Denmark, but that charter expires June 20, 1934. The last examination of the bank showed total deposits of $1,192,267, with earning assets of $1,445,350. The business of the Islands is largely confined to St. Thomas. The last report of the Governor showed little change from the year before in the number of vessels calling at the port and the number of those bunkered with coal and oil. During the last fiscal year vessels of over 100-tons register putting in at St. Thomas numbered 472 as compared with 460 the previous year, but the gross tonnage fell to 1,850,827 as compared with 2,002,098 the year before. Cattle exports increased 6 per cent, but the average price was 30 per cent below the level of the year before.

AGRICULTURE AND INDUSTRY

An experiment in subsistence homesteads has been undertaken by the Federal Government. Sixty families on St. Thomas have been allotted homestead plots varying from three to eight acres, sold on a 20-year plan which amortizes principal and 4 per cent interest. A similar experiment has been undertaken on St. Croix where 145 homesteads were laid out on an 850-acre tract, most of the homesteads being occupied by Feb. 1, 1933. These are largely adapted to sugar cane production. On the same Island, near Christiansted, another project involving 500 acres has been found suitable for homestead allotment, but the cost per acre is about 50 per cent higher than the other project on the Island. There are about 3,000 cattle on St. Thomas, but shipments to Puerto Rico, the only market, have fallen off because the price has been depressed. On St. Croix, 80 per cent of the Island is given over to cattle growing, but the herds are owned entirely by about 20 men. During the year an experiment in raising fresh tomatoes for the New York market during the winter season was undertaken. The planting was not timed to take advantage of price fluctuation by months. Despite this the project was profitable for the majority of growers.

GUAM AND AMERICAN SAMOA

By A. C. Pickens

Captain, U. S. N.; Office of Island Governments, Navy Department

GUAM

Government. — Capt. Edmund S. Root, U. S. N., was Governor of Guam until June 21st, when he was relieved by the present Governor, Capt. George A. Alexander, U. S. N. During the year Guam has suffered very slightly from the economic depression. The income of the Government has been maintained to the level of the previous year and the governmental wage scale maintained despite the reductions in the Federal wage scale. A new set of civil and criminal codes and procedure in the judiciary system was completed during the year and will be put into effect about the beginning of next year. A new court has been added and the docket cleared of all old cases.

Population. — The population on June 30, 1933 was: Natives, 18,477; non-natives residing in Guam including families, 764; naval personnel, 559. The native population increased 180 during the year.

Health.—An epidemic of measles (2,063 known cases) broke out during the period from June, 1932 to January, 1933 which caused 152 deaths, mostly among native children of preschool age. Eight modern public sanitary toilets of the flush septic tank type were erected during the year in various districts. 906 children were born and 724 deaths occurred. During the year there were 3,415 hospital admissions, 2,700 to the Naval hospital and 715 to Susana Hospital. The personnel on duty at the hospitals are 10 naval medical officers, one naval dentist, 2 Navy pharmacists, one contract civilian dentist, 48 hospital corpsmen, 3 Navy nurses and 24 native nurses. No new cases of leprosy were found. On June 30th, there were 4 inactive leper cases under treatment on the Island and 10 cases under treatment in Culion Leper Colony in the Philippines. Native insane patients were cared for, as in previous years, at the new Insular Psychopathic Hospital in Manila. There were no new commitments from Guam during the year. One patient died in that institution, leaving 6 patients under treatment at the end of the fiscal year.

Education.—A new farm school was started and it completed a satisfactory year with 22 pupils. The use of the English language through the medium of the schools is on the constant increase. A new policy was inaugurated on January 1st, of replacing all American teachers with native teachers. The head of the Department of Education continues to be the Navy chaplain. The school system on June 30th, comprised 30 schools, divided as follows: 20 academic (pre-primer to sixth grade), 1 junior high school (7th to 9th grades), 4 industrial schools, 1 agricultural school farm, 1 private school, 1 night high school and 2 American schools for the children of service personnel. 152 native teachers are employed. The teachers at the American schools are the wives of officers. The enrollment at the close of the school year was 3,764, an increase of 132 over the previous year.

The Guam Museum, containing relics indicative of the Spanish days and of the ancient Chamorro civilization, was formally opened on November first.

Agriculture.—Cash sales during the year in the public market amounted to $13,720. Agriculture is the backbone of all financial conditions in Guam. While no exact figures are at hand, it is believed that agricultural pursuits have increased to a point not before seen. Surplus farm products, mostly avocados, have been disposed of in both China and the Philippines. The copra market has continually grown weaker and the export to the United States and the Philippine Islands closed entirely during the latter part of the year due to the low price. The growing of kapok which thrives in Guam and is of excellent quality is being stimulated. The Experimental Station belonging to the U. S. Department of Agriculture was closed on July 8th, 1932, due to lack of funds and taken over by the Naval Government of Guam. The old site and equipment were used to establish an agricultural school.

Shipping.—During the fiscal year 55 vessels entered and cleared Apra Harbor.

Revenues.—During the fiscal year the imports totaled $379,120 and exports $52,196, showing a balance of trade against Guam amounting to $326,924 as against $460,610 of the previous year. About one third of the imports were food stuffs.

AMERICAN SAMOA

Government.—Capt. G. B. Landenberger, U. S. N. was governor during the year. The annual Fono made two important recommendations:

(1) that a Matai name in the future may be held by persons of three-quarters Samoan blood, provided such part blood Samoan was born in American Samoa, descendant of a Samoan family, chosen by his family as Matai, lives with Samoans as a Samoan, has lived in American Samoa for more than five years and officially declared his intention of making American Samoa his home for life;

(2) that the present law in American Samoa that only a full blood Samoan may own land in American Samoa, other than freehold, be changed to permit a person of three-quarters Samoan blood, born in American Samoa, a descendant of a Samoan family, living with Samoans as a Samoan, who has lived in American Samoa for more than five years, and has officially declared his intention of making American Samoa his home for life to own land the same as any other Samoan but with the distinct understanding that if he marries a person of more than one-quarter foreign blood, his children cannot inherit the land.

These recommendations are now in the process of being drawn up for the Governor’s approval to be made a change in the Codification of the Regulations and Orders for the Government of American Samoa.

Tuitele, District Governor of the Western District and County Chief of Lealatua County, died during May. The position has not been filled as yet, though Fa ’Iivae, the next highest chief in the County has been recommended and is acting County Chief. Fuimano was sworn in June 15th as County Chief of Leasina County, filling the seat left vacant by the death of the former chief during the influenza epidemic of 1931.

Revenues.—The estimated receipts for the year are $108,800 and expenditures $88,686, giving a surplus of $20,114 of which $10,000 was loaned to the Bank of American Samoa to increase its capital from $15,000 to $25,000. This bank is owned by the island government and is in a stable condition. The only direct tax, with the exception of an insignificant tax on freehold property and leases, is the Poll and School Tax. During the year there were 2,214 taxpayers who paid a total of $23,294.

Copra.—The island government, at the request of the Fono, handled the copra crop for 1932 and is handling it also for this year. Due to the soy bean, which produces an oil similar to the cocoanut oil, and which is exported from Manchuria in great quantities, the copra business showed a deficit of $2,590 during the year. 602 tons were shipped during the year at about $32 per ton, a price 36% lower than the previous year. The outlook for 1933 is not bright; the best bid being only $28.00 per ton; however, there is always the possibility that a new market may be found for copra.

Population. — The population of American Samoa, including Swains Island, on May 31st, was 10,773, an increase of 501 over the previous year.

Education.—During the past year the entire educational system has been altered. There is a Board of Education, a Director, a Superintendent and such other officers deemed necessary, all appointed by the Governor. There are 50 teachers of whom six are white and 44 are Samoans. All are men except three women; two white and one Samoan. There are 21 schools in the public school system, having an enrollment of 2,229, an increase of 111 over the previous year. Only English is spoken in the public schools; however, the native pastors of four denominations (Congregational, Catholic, Mormon and Wesleyan) conduct schools in Samoan, teaching mostly religion. There are in addition four parochial schools having six white and six Samoan teachers, with an enrollment of approximately 400. No subject is taught that has not been approved by the Board of Education. A new experimental senior school, called Feleti School, is being founded on a trust fund left for this purpose by Frederick Duclos Barstow.

Agriculture.—A new Department of Agriculture was inaugurated in October and an officer appointed as Aide to Agriculture. An experimental farm was established. Agriculture was made an integral part of education in the schools.

Public Works.—Routine upkeep of roads, bridges, channels, and buildings, although considerably curtailed, continued during the year.

Health.—The general health was considered favorable. 176 deaths occurred during the year making the rate 16.92 per 1,000 as against 210 deaths, rate 20.62 per 1,000 for preceding year. Pneumonia and tuberculosis were the causes of 43% of the deaths. Health education is being continually taught in all schools. There is one small hospital and four outlying dispensaries.

THE DISTRICT OF COLUMBIA

By W. Reed West

Associate Professor, The George Washington University

STREET RAILWAYS

After years of effort a unified street railway system has been provided for the District through a merger of the Washington Railway and Electric Company and the Capital Traction Company. Terms of the merger are embodied in a joint resolution of Congress, approved Jan. 14, 1933 (72d Cong., Sess. II, Ch. 10) as amended Feb. 16 1933 (Ch. 94). The provisions of the resolution were subject to final approval by the stockholders of the two old companies. This approval was given in September. The merger became effective Dec. 1, 1933. The new company, the Capital Transit Company, must grant free transfers at junctions of its street car lines, and transfers under reasonable terms and conditions to be fixed by the Public Utilities Commission between street cars and buses. The public should profit not only from these improved transfer conditions but also from improved transportation. The National Capital Park and Planning Commission reported that, by building approximately six miles of new track and abandoning sixteen miles of old track, possibly as many as 180 right- hand turns and 160 left-hand turns, or approximately half the turns then existing, might be eliminated. From the point of view of the companies many economies are expected to result from the merger. Unification has come at a fortunate time since the plan of placing the government buildings in the new "Federal triangle" will make necessary a readjustment of the transportation system.

KIDNAPING

The old law on kidnaping provided no penalty for kidnaping an adult if he were not carried off or decoyed out of the District, although for kidnaping a child under sixteen, whether taken out of the District or not there was a maximum penalty of not more than twenty years or a maximum fine of $1,000, or both. Where persons over sixteen were carried off or decoyed out of the District the maximum term of imprisonment was seven years, a fine of $1,000, or both. A new law (72d Cong., Sess. II, Ch. 103) has attempted to correct the defects in the old act by applying the penalties to all cases of kidnaping for ransom and where any of the steps in connection with the crime are taken in the District. The provisions for a fine are removed and the term of imprisonment is increased to life or such term as the court may determine.

CRIMINAL BONDS

In the past there has been virtually no control by the courts of the business of executing bonds for compensation in criminal cases. By act of Congress (72d Cong., Sess. II, Ch. 206) this business has now been placed under regulation as a business impressed with a public interest. The new law prohibits payments by bondsmen to police officers, attorneys or other public officials for aiding in securing any person to employ bondsmen in criminal cases; provides for qualifications, financial and moral to be set by the courts for bondsmen; provides for the posting of lists of bondsmen in police precincts, jails and the like, and lays down other regulations designed to improve the standards for bondsmen in the District.

DAMAGE ACTIONS AGAINST THE DISTRICT

There have been numerous instances in which notices of injury resulting from such conditions as defective sidewalks have not been received until over two years after the alleged injury occurred. To correct this it has been provided (72d Cong., Sess. II, Ch. 138) that notice be given within six months after an injury or damage has been sustained. A report in writing by the Police Department will be considered sufficient, as well as written notice by the claimant or his agent or attorney. The act does not in any way effect the three-year period provided by the statute of limitations within which the suit must be filed, but merely calls for notice so that the District may make an investigation and prepare its case before witnesses have disappeared or conditions changed so as to leave it without evidence.

BANKING

Until March 4, 1933, it was permissible for building and loan associations chartered in the states to do business in the District of Columbia. Under new legislation (72d Cong., Sess. II, Ch. 274) of this date such companies will be excluded, except that those doing business at the time of the enactment of the new law are permitted to continue. The act contains various other provisions intended to improve banking conditions in the District, including punishment for persons who maliciously start false rumors of unsound conditions in a bank, trust company, or building and loan association.

TAXATION

Two minor acts dealing with taxation, were passed during the year. One (72d Cong., Sess. II, Ch. 130) permits the payment of taxes on family dwelling houses in quarterly instalments, thus distributing the payments so as to be more easily borne by the home owner. The other (72d Cong., Sess. II, Ch. 139) amends the law concerning the taxes based upon premium receipts to be paid by insurance companies.

CLOSING OF STREETS

Wherever the District government has acquired land for public purposes it has heretofore been necessary to secure a special act of Congress to effect the closing of any undesired streets or alleys within the tract. Similarly an act of Congress has been necessary to close any other streets or alleys that became unnecessary. Delay in the development of highway plans sometimes has resulted. The Commissioners have now been authorized to close unnecessary streets and alleys without the necessity of a Congressional act in each case. (72d Cong., Sess. II, Ch. 4. Dec. 15, 1932).

BEVERAGE TAX

The session of the "hundred days" was too much occupied with matters of national importance to devote much time to the affairs of the District of Columbia. One act (73d Cong., Sess. I, Ch. 19) was made necessary by some of the national legislation, however. This act, regulating the sale of beverages containing one half of one per cent or more of alcohol by volume and not over 3.2 per cent by weight is in the form of a tax. "On sale" permits to restaurants, hotels and clubs for beverages to be consumed on the premises, "off sale" permits for beverages to be carried out, manufacturers' permits, wholesalers' permits and solicitors' permits are to be issued by the Commissioners. "On sale" permits call for a fee of $100 a year, "off sale" $50, manufacturers' $1,000, wholesalers' $250 and solicitors' $1. Monthly reports of sales are required, and outside manufacturers and wholesalers must make such reports in order to hold certificates of approval from the Commissioners enabling them to carry on business in the District. The tax upon beverages sold, "off sale" or "on sale," is fixed at $1 for each 31 gallons or fraction thereof, and is payable monthly. Sales to persons under eighteen are prohibited. Permits are to be granted only to citizens of the United States never convicted of a felony and of good moral character, and under certain other restrictions. The personal qualifications apply to the principal officers of corporations. The location of a business must be "an appropriate one," taking into consideration its surroundings and the number of permits in the neighborhood.

GOVERNMENTAL CHANGES

There has been considerable newspaper comment upon the possibility that the new Federal Administration might propose a fundamental change in the District government. This would have substituted a single city manager for the old board of three commissioners. There appears to have been little or nothing in the way of complaint concerning the actual accomplishments of the existing system. The District appears to have enjoyed an effective administration of its affairs under the boards of commissioners, with clean government and little in the way of scandals such as have disgraced some American city governments. Since no formal proposals were made from any official source the reason for the suggested change, if any actually was contemplated, is not known. Meantime, no appointments were made of successors to Commissioners Reichelderfer and Crosby whose terms had expired in April but who remained until the new appointments could be made. In November, however, Melvin C. Hazen and George E. Allen were appointed by the President to the positions. Mr. Hazen had been surveyor of the District for many years. Mr. Allen had been a hotel executive. The present are interim appointments. Permanent appointments require the consent of the Senate. The fact that the new commissioners have been named would indicate that no immediate change in the District commission plan is contemplated. The third commissioner, Major Gotwals, the "engineer commissioner" assigned from the Army, will remain until July, 1934, if the usual term for this assignment is adhered to.

EMPLOYMENT CONDITIONS

The economy program inaugurated by the new Federal Administration in the government establishments led to the discharge of many employees as well as salary reductions for the remainder. Discharges were especially distressing when they occurred among civil service employees who had placed dependence in the presumed permanence of civil service positions. The discharge of these employees was accompanied by an influx of other workers into the new Federal establishments. The heavy turnover has resulted in considerable distress.

SPHERES OF AMERICAN INFLUENCE

By Roy Malcom

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CUBA

Death of Fernandez. — Early in January, 1933, Angel Alvarez Fernandez, a student, was fatally shot in Havana. He had been arrested in September, 1932 for complicity in the assassination of Dr. Vasquez Bello, President of the Senate. U. S. Ambassador Guggenheim had unofficially asked a fair trial for the youth a few hours before he was killed.

Press Censorship.—On Jan. 9 the Cuban government established a censorship of English-language newspapers in Havana, aiming particularly at the *Havana American*, which had been quite critical of the Machado administration. Its editor, John T. Wilford, who had been deported once, but allowed to return later, filed a protest with the American Embassy against the censorship of his paper, alleging unconstitutionality. On Jan. 14 Cuban Secretary of State Ferrara announced the removal of censorship over American publications circulating in Cuba. A dispatch from Havana to *The New York Times* on Feb. 22 indicated that the Cuban authorities were continuing their program of barring from public sale all printed material arriving from the United States which was critical of the Machado administration, although this was repeatedly denied by the Cuban government. It was reported on March 23 that the military censors of Cuba had confiscated 115 copies of *Current History*, because of the article ''Cuba Under President Machado'' by Russell Porter of *The New York Times* staff. Perhaps the Machado administration was nettled by statements such as: ''Cuba is caught in a vise between the low price of sugar and the high cost of a debt service which becomes relatively more burdensome every year in terms of the rapidly diminishing national income. She is squeezed tighter in this vise by the heavy taxation needed for the support of the military establishment which keeps the Machado government in power and which consumes about 25 per cent of its revenues.''

American Good Offices.—On Jan. 12 Representative Fish of New York introduced a resolution in the House of Representatives which would empower President Hoover to extend the good offices of the United States to restore internal peace and order in Cuba.

Reports emanated from the American Congress in April to the effect that there was an undercurrent of feeling that the United States should use its good offices to put an end to ''the reign of terror'' in Cuba. On April 18 President Roosevelt held a two hours conference with Cuban Ambassador Oscar Cintas.

Welles Appointed U. S. Ambassador.—Dispatches from Cuba on April 24 indicated that the Cuban authorities were continuing their program of preventing the sale of American publications. On the same day the United States Senate confirmed the appointment of Sumner B. Welles as American Ambassador to Cuba, succeeding Harry F. Guggenheim, who sailed for Washington on April 2. Mr. Welles had been Assistant Secretary of State in charge of Latin American affairs. In a formal statement he declared he would respect the sovereignty and independence of the Cuban Republic. Ambassador Welles arrived in Havana May 7 and presented his credentials to President Machado May 11. He gave out a statement to the effect that economic matters would receive his immediate consideration. Throughout June the American Ambassador was busy acting as a mediator between President Machado and his enemies. On June 16 the American State Department announced that any efforts of Ambassador Welles in behalf of the opposing political factions would be in his own personal capacity and not as an official United States mediator.

President Roosevelt's Message.—On July 1 began negotiations between the Machado government and various opposition groups, with the American Ambassador acting as the unofficial mediator. Ambassador Welles read a special message from President Roosevelt. "I am convinced," said the President, "that the restoration of political peace is a necessary and preliminary step on the way to Cuba's economic recovery. The representatives of all factions may rest assured that the moral support of the American people will be behind these attempts at a peaceable adjustment of Cuban problems through the orderly procedure of constitutional government."

Flight of Machado.—On Aug. 12 eight years of rule under President Machado came to an abrupt end. On that day Machado fled into exile in an airplane which, according to the press dispatches, was bound for Nassau in the Bahamas. On the same day a special dispatch to *The New York Times* from Washington stated: "President Roosevelt on his return from the White House late today, awaited a detailed report from Ambassador Sumner Welles on the Cuban situation. The tension of the past two days was noticeably relaxed and the plain inference was drawn that the trend of political events in Havana has been of a nature satisfactory to this government. . . . As soon as the political situation at Havana is stabilized, the work of completing a reciprocal trade agreement with Cuba will be pressed, it was said. The idea of close trade relations with Cuba is put forward strongly by the administration as a means to recovery and peace in the Island. Secretary Hull said the commercial policy of this country for the past several years had tended to choke Cuban economic development, and indicated that the new program would have the early attention of the state department."

Rise and Fall of Cespedes. — Carlos Manuel de Cespedes became head of the government after President Machado's flight but remained in office only a short time—to Sept. 5. It was stated in informed circles that one of the principal reasons for the speedy collapse of the Cespedes régime was its American flavor. Cespedes was looked upon by many Cubans as having had the strong backing of Sumner Welles, the American Ambassador. This added considerably to the unpopularity of Machado's successor.

Coup d'État of Grau San Martin.—On Sept. 5 the Cespedes régime was succeeded by a new government under the leadership of Dr. Ramon Grau San Martin, a professor in the University of Havana, aided by Dr. Guillermo Portela, also on the faculty of the University of Havana; Porfirio Franco, a business man and banker; Sergio Carbo, a newspaper man, and Jose M. Irizarri, a young lawyer. This junta, composed of five men, took over the reins of government without American approval. The new government was strongly backed by a vigorous and active organization of students under the name of *Directorio Estudiantil.* The American government seemed to be somewhat disturbed by the *coup d'état* and dispatched some 29 warships to Cuban waters. On Sept. 6 President Roosevelt informed the representatives of Argentina, Brazil, Chile and Mexico that the American Government had no desire to intervene in Cuba, and it was the hope of the United States that Cuba would speedily set up a government of its own choosing that would be able to maintain order.

Secretary Hull's Statement.—On Sept. 11 the American Secretary of State Hull stated: "In view of the deep and abiding interest in the welfare of the Cuban people and the security of the Republic of Cuba, our government is prepared to welcome any government representing the will of the people of the Republic and capable of maintaining law and order throughout the island.''

U. S. Withholds Recognition.—The American government withheld recognition from the Grau régime, first, because there was the question of whether it represented the choice of the Cuban people, and, secondly, the question of whether it was able to maintain order.

National Hotel Siege.—The officers of the Cuban army who had served the Machado régimes so well, and who had refused to go over to the new régime in the *coup d'état* of Sept. 5, had assembled in the National Hotel on Sept. 8, where they drew up resolutions calling upon the junta led by Dr. Grau to resign in favor of Dr. Cespedes. American Ambassador Welles had moved into the National Hotel some days before Sept. 8 and now found himself in a very embarrassing position. He was accused of using the American flag to shield traitors to the Cuban cause. Mr. Welles judiciously moved out and took quarters in the Hotel President. Then followed a siege of the National Hotel which lasted for twenty-four days. Finally on the morning of Oct. 2 a shot was fired and by 4 P. M. in the afternoon the besieged officers surrendered and the hotel was in a mass of ruins from gun-fire.

U. S. Declines To Intervene. — Numerous dispatches were sent to Washington calling upon the American government to meet its obligations under the Platt Amendment. All of these entreaties were met by word from Washington that the American government did not contemplate intervention and that Cuba was free to work out her own salvation.

Recall of Welles.—In the latter part of November President Roosevelt recalled Welles and appointed Jefferson Caffery in his place. The President had intimated that he intended to play a waiting game. He had declared that there must be set up in Cuba a government ''in which th Cuban people demonstrate their co fidence.'' The response to the Pres dent's move seemed to meet wit wide approval. A prominent nationa weekly put the case thus: ''Th President's act in transcending a petty considerations of prestige an bringing Mr. Welles home should b accepted by the Cubans as additiona evidence of genuine good will.'' Th announcement from Warm Spring where President Roosevelt was va cationing, that Mr. Welles was to b recalled was looked upon by the sup porters of the Grau San Martin gov ernment as a victory over Mr. Welles against whom they had waged a bitte campaign. In some quarters it wa taken as a hint of recognition, but up to the end of December Presiden Roosevell had not extended recogni tion.

President's Statement of Policy.— The attitude of the Roosevelt Admini stration toward intervention in Cuba was definitely stated in the address of the President before the Woodrow Wilson Foundation on the evening of Dec. 28. ''It, therefore,'' said the President, ''has seemed clear to me as President that the time has come to supplement and to implement the declaration of President Wilson (Mobile address of 1913) by the further declaration that the definite policy of the United States from now on is one opposed to armed intervention. The maintenance of constitutional government in other nations is not a sacred obligation devolving upon the United States alone. The maintenance of law and the orderly processes of government in this hemisphere is the concern of each individual nation within its own borders first of all.'' The President's address was very favorably received in Cuba and throughout the whole Latin-American world. Many saw in it a definite break with what has been called ''American Imperialism.''

HAITI

Johnson Charges. — On April 13 the American State Department made public a confession by David P. Johnson, United States Collector of Cus-ms at Port au Prince, Haiti. He dmitted his guilt in defrauding the aitian customs and in accepting ribes from some importers and merhants of Port au Prince. The Amrican government waived Johnson's mmunity as a treaty official and surndered him to the Haitian courts.

Withdrawal of U. S. Marines.—It ill be recalled that on Sept. 21, 1932, he Haitian National Assembly reected a treaty between the United tates and Haiti providing for the aitianization of the Garde d'Haiti, he withdrawal of American Marines, nd certain financial arrangements. 'ractically the same provisions were ncluded in an executive agreement ntered into by the two governments n Aug. 7 of this year. Oct. 1, 1934, the date set for the withdrawal of he United States Marines but the 'resident of Haiti is given the priviege of requesting the President of he United States to leave a small etail of American officers in Haiti to ct as instructors of the Haitian Naional Guard.

Financial Measures. — The new inancial arrangements will also beome effective on Oct. 1, 1934. The 'resident of the United States is to ominate a fiscal representative and deputy who are to be actually apointed by the President of Haiti. 'hese two officials, in addition to proecting the interests of Haitian bondolders, will take over some of the uties which are now performed by 'he Financial Adviser-general Receiver nd his deputy. The number of Amricans that can be employed in their ffices has been cut from fifty to ighteen. The Haitian government vill assume complete control of the nternal Revenue Service but the fiscal epresentative will administer the cusoms service, from which the country erives its principal revenues, and which constitute the chief security of ondholders.

NICARAGUA

Presidential Elections. — In the Presidential election held Nov. 6, 1932, under the supervision of Rear Admiral Clark H. Woodward, U. S. N., assisted by detachments of United States Marines, Dr. Juan Sacasa and Dr. Rodolpho Espinosa, candidates of the Liberal Party, were elected President and Vice-President, respectively, by a majority of 22,552. The dispatches from Nicaragua call attention to the strange political anomaly of Dr. Sacasa being elected to the Presidency with the help of the American Marines, which force had helped to prevent him from succeeding to the Presidency in 1926.

Congressional Elections.—The Liberals elected to the new Congress six Senators and fourteen Deputies. This will give that body sixteen Liberals and eight Conservatives in the Senate, while the Chamber of Deputies will be composed of twenty-nine Liberals and fourteen Conservatives.

End of U. S. Intervention.—Dispatches from Washington stated that the United States began to withdraw its marines Nov. 29, 1932 and all were out by Jan. 1, 1933. Thus was brought to a close six years of continuous military intervention. In a statement issued by the State Department on Jan. 1, it was pointed out that the United Sates had sent the marines to Nicaragua in 1926 at the request of the Nicaraguan authorities for the purpose of protecting American lives and property. Under the terms of an agreement with Nicaragua the troops had remained "for the dual purpose of organizing and training a non-partisan constabulary, and of supervising the elections of 1928 and 1932." It was the conviction of the American government that these aims had been realized. Looking toward the future, it is important to note that the State Department assured the nation that no American armed forces would remain on Nicaraguan soil under any circumstances. In his inaugural address on Jan. 1 Dr. Juan B. Sacasa called attention to the fact that the withdrawal of the American marines imposed a sacred duty on the entire citizenry of Nicaragua to aid the government in establishing peaceful conditions.

Sacasa-Sandino Pact.—It was reported on Feb. 2 that Sandino, the Nicaraguan rebel leader, had made peace with President Sacasa. This was said to have been made possible by the departure of the American marines.

PANAMA

Temporary Loan Default.—Interest falling due May 15 on a loan to Panama of $11,000,000 from the National City Bank of New York, payment was temporarily ordered suspended by the Panaman government May 11.

President Arias' Visit to U. S.—Throughout the summer rumors were current as to strained relations between United States and Panama. In the second week of October President Harmodio Arias of Panama journeyed to the United States for the purpose of an interview with President Roosevelt. The Panama newspapers called the trip of President Arias "the most important mission since the birth of the Republic of Panama." President Arias came to discuss among other problems the three following: (1) The problem thrust upon Panama by the drift of many unemployed from the Canal Zone into Panama. (2) The complaint that the Zone's Commissary stores were underselling the merchants of Panama. (3) Controversies concerning Panama and Zone radio broadcasts. Dr. Arias in answer to American newspaper reporters' questions denied that relations between the United States and Panama were strained. "Of course," said he "we have our controversies."

MARITIME JURISDICTION

By Charles E. Hill

Professor, George Washington University

TARIFF ACT, 1922, AND 12-MILE LIMIT

Frank Cook vs. the United States—The *Mazeltov* was a British vessel having a speed not exceeding ten miles an hour. Coast Guard officers, January 23, 1933, discovered her within 12 miles of the coast of Massachusetts and boarded her at a point 11½ miles from the nearest land. They asked for her papers and proceeded with the search. They discovered a large quantity of liquor cleared from St. Pierre, a French island in the Gulf of St. Lawrence, bound ostensibly for Nassau. No entry for this part of the cargo appeared in the manifest. It was conceded that she cruised off the American coast with the intent that the liquor should be taken to the United States. But she did not intend to approach nearer than 12 miles to the coast. The evidence failed to show that she had been in communication with the coast or had discharged any part of the cargo. The Coast Guard officers took her into Providence and turned her and the cargo over to the customs officials.

Because she had entered the 12-mile limit, the Collector of Customs, pursuant to the Tariff Act of 1922 reiterated in 1930, imposed a penalty of nearly $15,000 on Frank Cook, the master, for failure to include the liquor in the manifest and placed a libel against the cargo and the vessel. Ultimately, the case was taken to the District Court, the Circuit Court of Appeals, and the Supreme Court, Counsel for Cook argued that the treaty of 1924 between the United States and Great Britain establishing the hour's run from shore, superseded the 12-mile limit provided in section 581 of the Tariff Act of 1922. Justice Brandeis for the Supreme Court sustained this view because the treaty was later in date than the Tariff Act and because the treaty was self-executing. He found also that administrative practice supported this conclusion as shown by the amended instructions to the Coast Guard after the treaty took effect.

Moreover, the reenactment of the 12-mile limit in the Tariff Act of 1930 did not abrogate or modify the treaty of 1924 inasmuch as Congress had not so clearly expressed its purpose. The vessel having been seized outside the hour's run from shore without any warrant of law the libels were held to be properly dismissed. It was concluded, therefore, that for all states having the provision for the hour's run from shore in their treaties with the United States the 12-mile limit in the hovering acts had been superseded.

ADMIRALTY AND MARITIME JURISDICTION

United States vs. Santos Flores.—An American vessel, April 10, 1933, the *Padnsay,* was unloading at the dock in the Port of Matadi, the Belgian Congo, a point 250 miles inland from the mouth of the Congo River, when Santos Flores, an American citizen, killed another American citizen on board. Flores was brought back to Philadelphia. He was indicted for murder by the Federal Grand Jury. His counsel demurred to the indictment and asked for the discharge of the prisoner. The District Court sustained the demurrer and released the prisoner on the ground that the offense charged was without the jurisdiction of the Court. The case was appealed directly to the Supreme Court.

Two questions were presented in the appeal. First, whether the extension of the judicial power of the United States "to all cases of admiralty and maritime jurisdiction" by Article III of the Constitution confers on Congress power to define and punish offenses perpetrated by a citizen of the United States on board an American merchant vessel lying in the navigable waters within the territorial limits of another state. Counsel for Flores argued that the clause in Article I, section 8 of the Constitution, giving Congress the power "to define and punish piracies and felonies committed on the high seas," placed a limitation on the extension of judicial power "to all cases of admiralty and maritime jurisdiction" in Article III. Justice Stone in delivering the opinion of the Supreme Court found that it was the intent of the Convention at Philadelphia, 1787, as shown by Madison's minutes, that admiralty jurisdiction should be given wholly to the National Government. He found further that this section had been consistently interpreted as adopting for the United States the system of admiralty and maritime law developed in the admiralty courts of England and by implication conferring on Congress the power to modify or supplement it as experience might require. The power granted to Congress to define and punish felonies committed on the high seas was not therefore of a restrictive nature. The second question was whether Congress has exercised this power by the enactment of clause 272 of the Criminal Code under which the enactment was found. This clause is applicable to crimes "committed upon the high seas, or on any waters within the admiralty and maritime jurisdiction of the United States. . . ." It was held that jurisdiction extends to American vessels when on navigable waters within the limits of a foreign state. It was recognized that this principle of extra-territorial jurisdiction over crimes committed on merchant vessels had been explicitly adopted in United States *vs.* Rodgers.

SHIPWRECKED SEAMEN

Alaska Steamship Co. vs. United States.—The S. S. *Depere* was wrecked on the southern coast of Alaska. The crew of thirty-five seamen was taken to Ketchikan, Alaska, where the deputy collector provided subsistence and arranged with the master of the S. S. *Yukon* to transport the crew to Seattle. He agreed that a total of $397.20 should be paid for the transportation of the shipwrecked crew. Both the *Depere* and the *Yukon* were owned by the Alaska Steamship Co. The Comptroller General denied compensation on the ground that the duty relieving and transporting the shipwrecked crew was primarily that of the owner, especially since it was provided in the shipping articles that the crew was to be returned to a port of the United States.

Suit for the claim was brought in the U. S. District Court, which sustained the Comptroller General. The Circuit Court of Appeals affirmed the judgment of the District Court, but on a different ground, which was that the statutes authorized consuls in foreign countries to certify transportation for needy American sailors and that collectors of customs had no authorization to do so for sailors from one American port to another. The administrative practice had been for years to allow transportation expenses from the ports of Alaska, the Philippines, Hawaii, Porto Rico, and the Virgin Islands. The Alaska Steamship Co. filed a petition for a writ of certiorari with the Supreme Court, which has granted the motion.

PART THREE

GOVERNMENTAL FUNCTIONS

DIVISION VII

PUBLIC FINANCE AND TAXATION

NATIONAL EXPENDITURES AND REVENUES

By Merlin H. Hunter

Professor, University of Illinois

GENERAL

The year has been unusual in so far as Federal finances were concerned. President Hoover transmitted to Congress Dec. 5, 1932, his budget for the fiscal year ending June 30, 1934. In March, of course, he was succeeded by a President of a different political party while the political complexion of the new Congress was also considerably changed. The difference in the viewpoint of the new President and Congress could not but affect the operation of the finances as submitted by President Hoover. Perhaps we can do no better than to outline the plan as recommended by President Hoover in his budgetary message and then note some of the activities under the present administration.

APPROPRIATIONS AND EXPENDITURES, 1933 AND 1934

In his message President Hoover compared the estimated appropriations for 1933 and 1934. He indicates a net reduction in appropriations in the latter year over the former of about $580,000,000. Estimates of appropriations do not correspond with estimates of expenditures. Many expenditures of a particular year are in liquidation of obligations of a prior year and out of a prior year's appropriation. Many obligations, moreover, incurred during the year are liquidated in a subsequent year. These tables (pp. 200, 201) show the estimated appropriation and expenditures as recommended in the body of the budget and as modified by additional recommendations.

EXPENDITURES AND SOCIAL INCOME

It is out of income that the people have to furnish funds to meet public expenditures. When the income is large relative to expenditure, then the burden is lightly felt, but with a marked fall in income and stationery or only slightly reduced expenditures the burden becomes oppressive with a demand for decreased expenditures. Social income reached its peak in 1929, estimated between 90 and 100 billion dollars. For 1933 it is estimated at between 40 and 50 billion dollars. A comparison of anticipated expenditures for 1934 with actual expenditures for 1929 will give some idea of relative burden. In 1929 total expenditures were $3,848,463,000. The estimated actual expenditures for 1934, as indicated in the above table, are $3,790,425,000 when additional recommendations are considered and $3,974,794,000 in the body of the budget. Thus it is seen that the estimated expenditure for 1934, the first year of better conditions (Mr. Hoover said the worst had been passed) is practically the same as for the peak year of prosperity. This table (p. 202) shows the actual expenditure for particular items in 1929 and the estimated expenditure for 1934.

APPROPRIATIONS, 1933 AND 1934

Department or establishment	Fiscal year 1934 estimates		Fiscal year, 1933 appropriations	Increase (+) or decrease (−) of fiscal year 1934 compared with fiscal year 1933	
	As estimated in the body of the Budget	As modified by additional recommendations in the Budget Message		As estimated in the body of the Budget	As modified by additional recommendations in the Budget Message
Legislative	$21,088,928	$17,558,317	$18,822,141	+$2,266,787	−$1,263,824
Executive Office and Independent Establishments (except Veterans' Administration)	47,062,220	45,771,848	84,892,891	−37,830,671	−39,121,043
Veterans' Administration	1,060,976,834	931,077,773	1,020,464,000	+40,512,834	−89,386,227
Agriculture	118,814,909	115,883,297	317,883,236	−199,068,327	−201,999,939
Commerce	37,934,323	36,409,372	44,784,408	−6,850,085	−8,375,036
Interior	58,190,020	56,594,543	81,325,484	−23,134,555	−24,730,941
Justice	45,082,487	43,421,843	45,996,000	−913,513	−2,574,157
Labor	13,393,345	12,793,616	12,924,770	−468,575	−131,154
Navy	309,647,536	308,695,579	328,906,141	−19,258,605	−20,210,562
Post Office:					
From postal revenues	627,293,161	627,293,161	651,104,675	−23,811,514	−23,811,514
From the Treasury	97,000,000	67,215,330	155,000,000	−58,000,000	−87,784,670
State	13,008,627	12,505,304	13,694,793	−686,166	−1,189,489
Treasury	289,861,557	284,898,147	375,027,597	−85,166,040	−90,129,450
War:					
Military	278,606,741	276,863,201	305,739,924	−27,133,183	−28,876,723
Non-military	73,296,440	71,559,462	151,718,158	−78,421,718	−80,158,696
Panama Canal	13,106,404	12,553,368	11,146,661	+1,959,743	+1,406,707
District of Columbia	39,743,270	38,643,862	44,497,622	−4,754,352	−5,853,760
Public Debt:					
Reduction in principal	534,070,321	534,070,321	496,803,478	+37,266,843	+37,266,843
Interest	725,000,000	725,000,000	640,000,000	+85,000,000	+85,000,000
Total	$4,403,178,032	$4,218,808,344	$4,800,731,979	−$379,553,947	−$581,923,635

PLAN TO ELIMINATE DEFICIT

From the modified budget figures it is seen that a deficit of some $307,000,000 will result. To meet such a condition Mr. Hoover recommended that (a) the Federal tax on gasoline, effective only until June 30, 1933, be continued for another year, to produce some $137,000,000 and (b) that the manufacturers' excise tax be extended and in part be replaced by a general uniform tax except upon food. The adoption of these recommendations, he believed, would allow the government to go through the year without increasing the indebtedness.

ITEMS IN THE HOOVER MESSAGE

Federal-aid Highways. — "The authorization for appropriations for the Federal-aid highway system expires with the current fiscal year, 1933, and the unappropriated balance of the authorizations amounts to $51,560,000. This Budget contains an estimate of appropriation of $40,000,000 of this balance, this being the amount which will be required for expenditure in 1934 in the absence of any further legislative authorization for appropriation. I earnestly recommend to the Congress that there be no further grant of legislative authority for appropriation for Federal-aid highways until the financial condition of the Treasury justifies such action. The annual program of Federal aid for the highway system was increased from $75,000,000 to $125,000,000 beginning with the fiscal year 1931 and has been materially further advanced within the last two years by the appropriation of $80,000,000 made in the Emergency Construction Appropriation Act of December 20, 1930, and the appropriation of $120,000,000 contained in the Emergency Relief and Construction Act of July 21, 1932. I am not unmindful that these emergency appropriations, amounting to $200,000,000, represent advances only and that under the provisions of the acts making them the entire amount, less the $15,000,000, returnable to the United States from the authorization for 1933, is eventually to be reimbursed to the United States by deductions from the apportionments which may be made to the States under any future authorizations that may be granted for carrying out the Federal Highway Act. I do not, however, view this as a commitment which of itself necessitates further authorization for Federal appropriations until such time as the financial condition of the Treasury justifies such action.''

EXPENDITURES, 1933 AND 1934

Department or establishment	Fiscal year 1934		Fiscal year 1933, as estimated in the body of the Budget	Increase (+) or decrease (−) of fiscal year 1934 compared with fiscal year 1933	
	As estimated in the body of the Budget	As modified by additional recommendations in the Budget Message		As estimated in the body of the Budget	As modified by additional recommendations in the Budget Message
Legislative	$20,581,300	$17,050,700	$24,675,800	−$4,094,500	−$7,625,100
Executive Office and Independent Establishments (except Veterans' Administration)	51,675,800	50,385,500	128,904,800	−77,229,000	−78,519,300
Veterans' Administration	1,105,008,000	975,109,000	1,073,381,000	+31,627,000	−98,272,000
Agriculture	144,876,400	141,944,800	314,204,500	−169,328,100	−172,259,700
Commerce	40,066,000	38,541,100	44,743,400	−4,677,400	−6,202,300
Interior	71,010,500	69,414,200	75,605,800	−4,595,300	−6,191,600
Justice	44,654,000	42,993,400	46,081,300	−1,427,300	−3,087,900
Labor	13,368,500	12,768,800	12,337,400	+1,031,100	+431,400
Navy	330,126,000	329,174,100	356,360,500	−26,234,500	−27,186,400
Post Office:					
From postal revenues	625,000,000	625,000,000	600,000,000	+25,000,000	+25,000,000
From the Treasury	97,075,000	67,290,400	134,075,000	−37,000,000	−66,784,600
State	13,118,800	12,615,500	14,779,000	−1,660,200	−2,163,500
Treasury	326,365,700	331,402,300	367,725,800	−31,360,100	−36,323,500
War:					
Military	286,046,400	284,302,900	306,409,200	−20,362,800	−22,106,300
Non-military	108,071,000	106,334,100	121,077,700	−13,006,700	−14,743,600
Panama Canal	12,933,000	12,380,000	13,421,800	−488,800	−1,041,800
District of Columbia	40,747,500	39,648,100	41,952,000	−1,204,500	−2,303,900
Public Debt:					
Reduction in principal	534,070,300	534,070,300	498,153,400	+35,916,900	+35,916,900
Interest	725,000,000	725,000,000	695,000,000	+30,000,000	+30,000,000
Total	4,599,794,200	4,415,425,200	4,868,888,400	−269,094,200	−453,463,200
Deduct Postal Service payable from postal revenues	625,000,000	625,000,000	600,000,000	+25,000,000	+25,000,000
Total payable from the Treasury	$3,974,794,200	$3,790,425,200	$4,268,888,400	−$294,094,200	−$478,463,200

EXPENDITURES FOR PARTICULAR ITEMS

Item	Actual, 1929	Estimated, 1934
Senate	$2,876,000	$3,233,000
House of Representatives	7,813,000	8,168,000
Board of Tax Appeals	698,000	546,000
Federal Reserve Board	2,905,000	1,731,000
Interstate Commerce Commission	7,833,000	7,630,000
Government Printing	3,080,000	3,150,000
Library of Congress	2,009,000	2,359,000
Veterans' Bureau	812,967,000	1,105,008,000
Experiment Stations	4,237,000	4,607,000
Extension Service	9,099,000	10,285,000
Weather Bureau	2,936,000	3,709,000
Agricultural Economics	5,766,000	6,102,000
Forest Service	16,432,000	12,505,000
Bureau of Public Roads	93,074,000	62,865,000
Natural Park Service	6,325,000	5,350,000
Reclamation Service	10,583,000	24,612,000
Treasury Department	200,447,000	326,365,000
Internal Revenue Service	33,026,000	100,482,000
Supervising Architect	45,898,000	137,011,000
Navy Department	364,562,000	333,126,000
War Department	416,902,000	394,117,000

Buildings.—‘‘The Federal public building program authorized by the act of May 25, 1926, is progressing satisfactorily and the activities under it have been of material assistance in the relief of the unemployed. The program involves a total expenditure for all purposes of approximately $700,000,000 of which $190,000,000 is for land and buildings in the District of Columbia.

‘‘In furtherance of the provisions of the enabling legislation 817 projects have been specifically authorized at limits of cost aggregating $470,717,000. On October 31, last, 254 of these projects had been completed, 400 projects were under contract either in whole or in part, and 110 projects were being processed toward the contract stage, the drawings therefor having been completed. In accordance with provisions of the Legislative Appropriation Act for the fiscal year 1932, original limits of cost were reduced 10 per cent for over two hundred projects not under contract on July 1, 1932. Further savings have been made as a result of the decline in price of materials and it is estimated that of the $470,717,000 specifically authorized for the 817 projects, at least $40,000,000 will be saved and all of them completed within $430,000,000.

‘‘In carrying on the program, including additional land in the District of Columbia, obligations aggregating $378,804,417.52, were incurred to October 31, last, and $261,278,065.75 actually expended.

‘‘The funds available for expenditure in the fiscal year 1933 amount to $134,053,401.19. It is expected that this amount, together with the $60,000,000 included in the estimates for 1934 now transmitted, will all be spent in the fiscal years 1933 and 1934.

‘‘These activities under the building program were increased to a marked degree by the appropriation of $100,000,000 for public buildings contained in the Emergency Relief and Construction Act of 1932, which was approved on July 21, 1932. This act stipulated that the projects undertaken under the emergency appropriation should be selected from those to which funds authorized under the regular public building program had been allocated. After a comprehensive survey of applicable conditions about 410 projects have been selected and plans have been laid to proceed with the work to the end that practically all of the funds appropriated will be obligated in the fiscal years 1933 and 1934.

‘‘No provision is made for additional projects in the Budget now transmitted, other than estimates aggregating $2,505,000 for miscellaneous projects not coming within the purview of the regular building program, as I do not deem further building at this time in the public interest.''

Rivers and Harbors and Flood Control.—''The estimate for the annual appropriation for the maintenance and improvement of existing river and harbor works contained in this Budget is $39,388,129, a reduction from the comparable amount of the regular annual appropriation for 1933 of $20,161,871. The emergency appropriations made last July for public works, with a view to increasing employment, contained $30,000,000 for rivers and harbors, which is in addition to the annual appropriation of $60,000,000 for 1933. Adding the estimate of appropriation for 1934 to the two appropriations for the current fiscal year will provide $129,388,129 for the two years, or an average of nearly $65,000,000 per year, and if there be included with these appropriations the amount of cash on hand June 30, 1932, the cash availability for river and harbor works during the fiscal years 1933 and 1934 totals approximately $149,445,000, or an average of $74,722,000 per year. Because of a reduction in the cost of labor and materials for work of this character the value of the work of river and harbor improvement which can be accomplished during the fiscal years 1933 and 1934 with the funds available would represent an increase of from 15 to 40 per cent, or between $171,862,000 and $209,223,000 at 1929 costs.

''For flood control the 1934 estimates of annual appropriations provide $19,653,424 for the Mississippi River and its tributaries and $768,480 for the Sacramento River, reductions of $12,066,576 and $207,520 from comparable amounts provided in the regular annual appropriations for 1933. In addition to the regular ~~annual~~ appropriation of $32,000,000 for the fiscal year 1933, there was provided $15,500,000 for flood-control work on the Mississippi River and its tributaries by the relief act approved July 21, 1932. Adding the estimate of appropriation for 1934 to the two appropriations for the current fiscal year will provide $67,153,424 for flood control on the Mississippi for the two years, or an average of over $33,500,000 per year, and if the cash on hand on June 30, 1932, be included the cash availability for the two years is approximately $85,523,000, or an average of $42,761,000 per year. In value of work these amounts will produce an increase of between 15 and 40 per cent over the work which could have been secured with the same amounts at 1929 costs, due to the reduction which has taken place in the cost of this character of work.

''The total of the estimates contained in this Budget for rivers and harbors (including maintenance and operation of Dam No. 2, Muscle Shoals) and flood control is $71,255,217, of which $49,935,313 is for rivers and harbors and $21,319,904 for flood control. The total of $71,255,217 includes $10,868,500 to meet requirements under authorizations of law covering permanent specific and indefinite appropriations, advances, and contributions for rivers and harbors, and flood-control work.''

National Defense.—''Excluding all items of a non-military nature the estimates of appropriations contained in this Budget for national defense under the War and Navy Departments amount to $586,447,000 as compared with appropriations of $632,466,000 for 1933, which indicates a decrease of $46,019,000. To obtain a proper basis for comparison, however, there should be deducted $16,996,000, which represents the deductions made in the 1934 estimates predicated upon a continuance during that fiscal year of certain provisions of the Economy Act. On this comparable basis the decrease is slightly more than $29,000,000.

''With regard to the War Department the net decrease is $18,215,000, which results from a large number of items of increase and decrease. The principal item of decrease is Army construction, for which $17,414,000 was appropriated in 1933 and for which no similar item is included in this budget. Construction under the

Army housing program has progressed to such a stage that a postponement of further construction can be made at this time without detriment to the Army. Other decreases which merit mention here are $3,590,000 in arming, equipping, and training the National Guard, effected principally by the inclusion in the estimate of appropriation of a provision temporarily suspending existing law so as to permit a reduction in the number of armory drills paid for by the United States from 48 to 24, and $1,592,000 for citizens' military training camps, made possible by a reduction of the number of trainees to be ordered to such camps. The principal increase is $4,483,000 for subsistence of the Army, which is due to the fact that the appropriation for 1933 was supplemented by $5,435,000 of excess stock and funds accumulated from prior year appropriations—no similar assets being available for 1934. There is also an increase of $1,243,000 for transportation of the Army, required principally for the procurement of trucks and ambulances and the transportation of Army supplies and its personnel and baggage.

''Provision is made in these estimates for average active strengths of 12,000 commissioned officers, 883 warrant officers, and 118,750 enlisted men of the Regular Army, and 6,500 enlisted men of the Philippine Scouts; for an actual average strength of 185,000 officers and men of the National Guard; for the training of 16,722 members of the Organized Reserves for varying periods; for the enrollment and instruction of 127,565 students in the Reserve Officers' Training Corps units in schools and colleges, and the training of 7,200 of this number in 30-day camps; and for 30 days' attendance at citizens' military training camps of 13,000 trainees. The estimate for 1934 make provision for the adequate maintenance and operation of Army Air Corps activities and for the procurement of 375 new airplanes, which will give the Air Corps a total of 1,537 airplanes, on hand and on order on June 30, 1934, leaving a shortage of only 111 in the approved program of 1,648 airplanes for the Regular Army.

''For the Navy Department the net decrease in the estimates for 1934 from the appropriations for 1933 is $10,807,000. There is a reduction of $12,554,000 for ordinary maintenance and operating expenses; $10,240,000 for public works projects, and $9,450,000 in the amount for modernization of battleships. Offsetting these reductions, totaling $32,244,000, is an increase of $21,437,000 for construction of new vessels.

''The items for ordinary maintenance and operation provide for maintaining during the fiscal year 1934 an average of 79,700 enlisted men of the Navy, the same as provided for 1933, and an average of 13,600 enlisted men of the Marine Corps as compared with an average of 15,343 men provided for 1933.

''The estimate of $4,400,000 included in this Budget for modernization of battleships is sufficient to complete work on two battleships and to carry forward work on the other ship now in dock.

''For construction of new vessels the 1934 estimates total $38,845,000. This sum, together with the amount of $5,000,000 to be transferred to this account from the naval supply account fund and an estimated balance of $9,525,000 to be carried over from 1933, will make available for 1934 a total of $53,380,000. This amount is ample to continue work at a normal rate of progress on all vessels now under way, and in addition, on one 8-inch cruiser to be laid down in January, 1933, another such cruiser to be laid down in January, 1934, and four destroyers to be laid down in the first half of the fiscal year 1934. The amount appropriated for 1933 for construction of new vessels was $18,063,000. In addition, $7,000,000 was authorized to be transferred from other appropriations and a balance of $37,817,000 was carried over from 1932, making a total availability for 1933 of $62,880,000. While the estimates for vessel construction for 1934 are about $21,000,000 in excess of the appropriation for 1933, the availability for 1934 will be some $9,500,000 less than the availability for 1933.

This difference is largely accounted for in the estimated savings due to the continuation of provisions of the Economy Act and the anticipated reduction in labor costs.

"The present schedule of wages for *per diem* employees of the Naval Establishment has been in effect since January 1, 1929. A provision of the Economy Act prohibits a reduction in such wage rates during the fiscal year 1933. This provision is not recommended for continuance through 1934.

"A total decrease of $4,576,000 in the cost of national defense is reflected in this Budget by the inclusion in the Post Office Department chapter of a general provision suspending for the fiscal year 1934, the reenlistment allowance or 'bonus' to enlisted men. There is certainly at this time no necessity for the military service which justifies the payment of a cash bonus to men for reenlisting in the service."

CONCLUSIONS OF PRESIDENT HOOVER

The message of President Hoover contains a discussion of many other phases of the Federal finances. His conclusion, however, is: "I can not too strongly urge that every effort be made to limit expenditures and avoid additional obligations not only in the interest of that already heavily burdened taxpayer but in the interest of the very integrity of the finances of the Federal Government."

RECEIPTS AND EXPENDITURES, 1932 AND 1933

This table (pp. 205-207) indicates the receipts from different sources and the expenditures for different items for the years 1932 and 1933, as well as for the months of July and August of these years. The attempt to divide expenditures into general and emergency has little significance in this table since such a separation was begun only in the fiscal year 1934. In the tables emergency expenditures, except those of the Reconstruction Finance Corporation, are included under the general expenditures. This explains why expenditures are listed under emergency items for July and August, 1933, but not previously.

SOURCES OF REVENUE

The Revenue Act of 1932 greatly extended the sources of revenue of the Federal Government. Subsequent legislation, moreover, has added other sources, outstanding among which are the processing taxes. The table, Comparative Statement of Internal Revenue Collections (p. 208), indicates the sources of internal revenue with their relative importance for September, 1932 and 1933.

REVENUES, EXPENDITURES, 1932 AND 1933

GENERAL AND SPECIAL FUNDS	Total July 1, 1933, to August 31, 1933	Total July 1, 1932, to August 31, 1932	Total July 1, 1932, to June 30, 1933	Total July 1, 1931, to June 30, 1932
Receipts				
INTERNAL REVENUE:				
Income tax..........	$27,387,024.31	$32,127,096.49	$746,206,444.95	$1,057,335,853.19
Miscellaneous internal revenue..........	239,292,154.15	97,048,048.67	858,217,511.61	503,670,481.19
Processing tax on farm products..........	9,320,535.80	....	....	....
Customs............	57,771,526.50	42,992,534.78	250,750,251.27	327,754,969.12
MISCELLANEOUS RECEIPTS:				
Proceeds of Government-owned securities:				
Principal—foreign obligations.......	179,595.19	....	31,567,518.98	....
Interest—foreign obligations.......	1,187,544.48	....	67,190,207.22	....
All others..........	1,349,848.80	816,068.72	32,090,746.50	22,367,500.84
Panama Canal tolls, etc..............	3,530,933.78	3,031,132.38	23,267,500.34	22,588,375.22
Other miscellaneous..	10,982,894.87	12,863,147.22	70,406,560.89	72,008,257.58
Total..........	$351,002,057.88	$188,878,029.26	$2,079,696,741.76	$2,005,725,437.14

VII. PUBLIC FINANCE AND TAXATION

	Total July 1, 1933, to August 31, 1933	Total July 1, 1932, to August 31, 1932	Total July 1, 1932, to June 30, 1933	Total July 1, 1931, to June 30, 1932
Expenditures				
GENERAL				
DEPARTMENTAL:				
Legislative establishment	$3,369,640.27	$4,531,141.24	$21,477,373.26	$27,318,601.16
Executive proper	53,921.10	75,098.84	369,112.82	424,545.62
State Department	2,124,211.70	3,106,342.09	15,225,568.81	18,881,863.78
Treasury Department	22,880,605.04	40,891,039.50	267,504,959.19	287,945,002.64
War Department (non-military)	2,312,295.01	....	....	....
Department of Justice	5,842,165.42	7,740,274.80	44,088,327.05	51,639,260.80
Post Office Department	2,059.11	19,320.05	57,882.41	125,898.90
Interior Department	6,369,461.62	16,715,304.04	74,579,716.62	81,444,996.16
Department of Agriculture	13,247,264.31	35,274,527.51	250,981,139.02	318,975,817.05
Department of Commerce	4,449,150.00	8,063,983.05	45,968,153.14	52,700,200.47
Department of Labor	777,353.84	1,844,149.52	13,677,841.57	14,701,343.97
Shipping Board	3,836,305.84	6,538,235.07	28,518,830.33	51,540,826.67
Other independent offices and commissions	4,103,360.97	5,967,290.08	45,237,407.39	52,545,270.64
Unclassified items	1,761,740.04	151,060.12	895,138.48	45,490.67
Total	$63,456,922.59	$130,615,645.67	$806,791,173.13	$958,289,118.53
Public-building construction and sites, Treasury Department	$16,607,720.28	....	....	....
River and harbor work	14,344,892.97	$19,069,111.78	$118,391,256.03	$116,798,680.00
National defense:				
Army	34,856,562.37	61,579,417.52	318,331,028.22	349,989,331.52
Navy	38,229,131.09	63,371,929.51	349,561,924.59	357,617,833.88
Veterans' Administration	98,204,284.28	134,027,978.14	763,154,886.30	784,841,819.60
Adjusted-service certificate fund	50,000,000.00	100,000,000.00	100,000,000.00	200,000,000.00
Agricultural Adjustment Administration	82,991.86	....	....	....
Farm Credit Administration	29,339,128.46	....	1,461,683.92	....
Agricultural marketing fund	....	2,185,804.41	3,254,996.45	136,238,855.68
Distribution of wheat and cotton for relief	....	....	34,240,628.21	....
Refunds of receipts:				
Customs	1,496,360.13	1,846,412.72	12,576,841.79	17,202,968.59
Internal revenue	11,210,867.13	11,431,603.64	57,763,110.46	83,921,552.08
Postal deficiency	2,999.37	15,078,597.56	117,380,192.33	202,876,340.63
Panama Canal	1,501,729.31	1,929,903.98	12,672,728.59	10,661,804.75
Subscriptions to stock of Federal land banks	223,331.25	100,880.00	242,545.00	125,000,000.00
Civil service retirement fund (Government share)	20,850,000.00	20,850,000.00	20,850,000.00	20,850,000.00
Foreign Service retirement fund (Government share)	292,700.00	416,000.00	416,000.00	215,000.00
District of Columbia (Government share)	5,700,000.00	6,555,188.98	7,775,000.00	9,500,000.00
Interest on the public debt	39,571,779.63	22,985,487.64	689,365,105.60	599,276,630.87
Public debt retirements:				
Sinking fund	....	....	425,660,300.00	412,554,750.00
Purchases and retirements from foreign repayments	....	....	30,977,000.00	....
Received from foreign governments under debt settlements	....	....	2,909,650.00	....
Estate taxes, forfeitures, gifts, etc.	3,500.00	....	2,057,850.00	75,000.00
Total	$366,683,997.58	$587,470,592.73	$3,865,915,458.88	$4,385,909,686.13

	Total July 1, 1933, to August 31, 1933	Total July 1, 1932, to August 31, 1932	Total July 1, 1932, to June 30, 1933	Total July 1, 1931, to June 30, 1932
Emergency				
Federal Emergency Administration of Public Works:				
Administrative expenses	$55,656.95	....	....	....
State Department	705.91	....	....	....
Treasury Department:				
Public building construction and sites	....	....	....	....
All others	9,694.20	....	....	....
Department of Agriculture:				
Public highways	42,992,399.55	....	....	....
All others	....	....	....	....
Department of Commerce	21,763.18	....	....	....
Department of Labor	27,235.18	....	....	....
Unclassified items	549,029.69	....	....	....
Administration for Industrial Recovery	368,160.06	....	....	....
Agricultural Adjustment Administration:				
Department of Agriculture	3,125,515.80	....	....	....
Treasury Department	....	....	....	....
Farm Credit Administration	10,242,000.00	....	....	....
Unclassified items	141,466.73	....	....	....
Farm Credit Administration, revolving fund	7,500,000.00	....	....	....
Emergency conservation work	44,396,703.27	....	....	....
Reconstruction Finance Corporation:				
Direct expenditures by the corporation	86,171,291.56	$264,591,895.68	$1,153,438,246.00	$705,868,006.52
From funds allocated by the corporation:				
Crop production loans	2,214,829.59	863,280.34	37,148,880.24	61,867,202.03
Regional agricultural credit corporations	8,796,146.86	....	44,685,756.79	....
Farm mortgage relief	410,216.59	....	110,023.55	....
Farm credit administration	2,656,868.42	....	2,294,738.91	....
Capital stock of Home Loan Banks	9,500,000.00	....	42,950,000.00	....
Capital stock of Home Owners' Loan Corporation	....	....	1,000,000.00	....
Tennessee Valley Authority	65,135.10	....	....	....
Federal Land Banks:				
Subscription to paid-in surplus	3,000,760.70	....	....	....
Total, emergency	$214,003,518.08	$265,455,176.02	$1,277,038,167.73	$767,735,894.68
Total, general and emergency expenditures	$580,687,515.66	$852,925,768.75	$5,142,953,626.61	$5,153,644,894.68
Excess of receipts over expenditures	....	....	....	....
Excess of expenditures over receipts	$229,685,457.78	$664,047,740.49	$3,063,256,884.85	$3,147,919,457.54

VII. PUBLIC FINANCE AND TAXATION

COMPARATIVE STATEMENT OF INTERNAL REVENUE COLLECTIONS FOR SEPTEMBER, 1932 AND 1933

Sources of Revenue	1933	1932
Income	$134,342,911.85	$142,203,202.33
Dividends	3,575,234.00	....
Capital stock	53,617,188.10	....
Estate	6,624,081.13	1,085,121.08
Gift	9,091.20	1,418.34
Non-beverage spirits	881,839.90	486,844.21
Wines, cordials, etc	35,188.04	15,427.51
Grape brandy for fortifying wines	19,558.32	7,795.67
Special taxes, etc., relating to distilled spirits	182,472.02	11,470.05
Fermented fruit juices, Act of Mar. 22, 1933, Bbl. tax	4,922.28	....
Fermented malt liquors, Act of Mar. 22, 1933, Bbl. tax	13,296,752.97	....
Special taxes, Brewers and dealers in malt liquor	438,780.97	....
Cigars	1,109,307.07	1,118,833.71
Cigarettes	28,585,235.59	27,936,321.14
Snuff	577,854.20	641,208.58
Tobacco, chewing and smoking	4,666,115.95	5,064,597.95
Cigarette papers and tubes	73,485.76	107,142.10
Miscellaneous, relating to tobacco	(4,484.26)	777.89
Bonds, issues of capital stock, conveyances, etc	1,192,606.58	1,502,366.10
Transfers of capital stock	2,173,211.53	5,594,571.53
Future delivery	769,653.82	459,720.72
Playing cards	357,806.68	399,595.20
Yachts and boats	15,272.38	23,878.59
Lubricating oils	2,127,322.47	1,399,303.91
Brewer's wort	7,791.81	278,838.29
Malt	498,899.21	535,706.10
Grape concentrates	268.93	705.20
Matches	374,919.91	112,940.82
Gasoline	18,528,448.91	11,409,747.92
Electrical energy	2,304,894.19	2,039,800.42
Tires and tubes	2,126,585.17	1,336,658.16
Toilet preparations, etc., at 5 per cent	383,932.30	849,118.11
Toilet preparations, etc., at 10 per cent	640,532.56	
Furs	1,008,939.32	619,970.68
Jewelry, etc	292,683.00	181,313.02
Automobile trucks	514,899.85	133,778.54
Automobiles and motor cycles	2,490,024.69	1,078,398.79
Auto parts and accessories	431,725.63	342,729.30
Radios and phonograph records	147,930.49	165,710.65
Mechanical refrigerators	394,596.33	107,063.30
Sporting goods	202,866.25	185,532.37
Firearms and shells	375,554.68	52,444.52
Pistols and revolvers	2,274.31	2,566.52
Cameras and lenses	30,972.53	17,760.88
Candy	295,110.39	256,637.07
Chewing gum	38,279.80	49,591.18
Soft drinks	478,185.31	573,953.05
Telephone, telegraph, radio and cable	853,428.58	1,334,098.06
Transportation of oil by pipe line	915,825.79	442,069.56
Safe deposit boxes	190,975.05	203,862.91
Checks, etc	3,090,070.69	3,793,136.51
Process butter, mixed flour, filled cheese	563.75	929.75
Oleomargarine, colored	3,016.20	3,787.00
Oleomargarine, uncolored	58,538.70	40,437.47
Oleomargarine, dealers' special taxes	26,436.69	25,182.71
Narcotics, including special taxes	15,557.44	12,937.25
Admissions	1,283,383.99	1,641,143.24
Club dues	438,941.48	533,175.71
Other miscellaneous sources	23,657.64	41,965.20
Total income and miscellaneous internal revenue	$293,142,130.12	$216,481,286.87
Agricultural Adjustment Processing Taxes:		
Wheat	9,184,558.38	....
Cotton	11,942,008.39	....
Unclassified processing, etc., taxes	4,716,981.44	....
GRAND TOTAL	$318,985,678.33	$216,481,286.87

THE NATIONAL BUDGET

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THE PRESIDENT'S BUDGET FOR 1934

President Hoover on Government Finances.—President Hoover, in presenting the budget for 1934 (*i.e.* for the fiscal year beginning July 1, 1933) to Congress on Dec. 5, 1932, expressed alarm concerning the financial condition of the government. He anticipated that the expenditures for the fiscal year then current would exceed by several hundred million dollars the total revenues available to meet them. This meant the third consecutive year of large deficits. "Such a situation," he said, "cannot be continued without disaster to the Federal finances." He proposed, therefore, to make "drastic reductions in expenditures," or what appeared to him as such at that time. He also recommended additional revenues, which he said would serve to prevent a further increase in the public debt during the fiscal year 1934, provided Congress would refrain from placing additional burdens on the Federal treasury. He concluded his budget message by saying: "I cannot too strongly urge that every effort be made to limit expenditures and avoid additional obligations not only in the interest of the already heavily burdened taxpayer but in the interest of the very integrity of the finances of the Federal Government."

Budgetary Proposals. — Realizing that something ought to be done to bring the national budget into balance at an early date, President Hoover recommended that appropriations for the fiscal year 1934 should be reduced by about $830,000,000 below the appropriations for the fiscal year then current. But he found it necessary to recommend about $250,000,000 of "unavoidable increases" in items not subject to administrative control, making a net reduction of $580,000,000. A large part of this reduction was to be made through cuts in Federal salaries and in the benefits to veterans. The total expenditure proposals were $4,415,000,000, in round figures. After deducting postal receipts of $625,000,000 and public debt retirements of $534,000,000, the remaining amount to be financed out of current revenues was $3,256,000,000. Since the estimated revenues amounted to only $2,949,000,000, an estimated deficit of $307,000,000 was forecast. To meet this deficit, President Hoover recommended the following taxes: an extension of the Federal gasoline tax, otherwise terminating on June 30, 1933, for another year, estimated to yield $137,000,000 additional revenue for the fiscal year 1934, and a general manufacturers' sales tax (excluding food), at a 2¼ per cent rate, estimated to yield about $355,000,000. He assumed that the additional revenue from these sources would make it possible not only to meet the deficit, but also to avoid a further increase in the public debt during the fiscal year 1934.

President Hoover indicated in his budget message to Congress that he did not favor the continuation of the policy of making direct expenditures out of Federal funds on public works projects as a means of stimulating employment. He thought that the program of self-liquidating works, financed by the Reconstruction Finance Corporation, was sufficient for this purpose. With respect to the appropriations for the Federal-aid highway system, he recommended that Congress should not make any further grants until the financial condition of the treasury justified such action. He did not deem it necessary to make further provisions for Federal building projects which, under a five-year program, were approaching completion. He also sought large reductions in appropriations for river and harbor works and floor control improvements.

CONGRESSIONAL ACTION ON THE BUDGET

Situation in 72d Congress.—When the second session of the 72nd Congress met Dec. 5, 1932, incidentally the last of the so-called lame duck sessions, it was at once evident that President Hoover could expect very little in the way of coöperation in authorizing his budgetary proposals. The House stood in party opposition to the President, having a working majority of Democrats, and the Senate was split practically fifty-fifty between the two parties—48 Republicans to 47 Democrats. "Here was a Congress," says E. Pendleton Herring, "divided in control, weakened by the presence of repudiated representatives, and under the discredited leadership of a defeated President, but nevertheless faced with perplexing problems of national and world import arising in a highly critical period. The necessities of the time called for coöperative planning and swift, united action, but the exigencies of politics suggested procrastination and obstruction. And the latter considerations prevailed."

Treatment of the President's Budget by Congress. — Shortly after President Hoover's budget was submitted to Congress, the House Democratic leaders showed evidence of deferring to the wishes of President-elect Roosevelt, with the result that they abandoned the enactment of revenue legislation during the session and postponed any attempt to balance the budget. Roosevelt had expressed opposition to the proposed manufacturers sales tax and had signified his intention to take the lead in matters of taxation and economy after his inauguration. Thus Hoover's budgetary proposals were largely disregarded by Congress almost from the beginning of the session.

After the congressional session had drifted along for nearly six weeks without any definite action on his budgetary proposals, President Hoover sent a special budget message to Congress on Jan. 17, 1933. He urged that steps be taken immediately to bring about "a balanced budget as the foundation of economic recovery." He insisted that "the maintenance of confidence in the financial stability of the United States government is the first contribution to all financial stability within our borders, and in fact in the world as a whole." "Upon that confidence," he continued, "rests the credit of the states, the municipalities, all our financial institutions and industry, it is the basis of recovered employment and agriculture." He criticised Congress for deferring action on the budget and observed that he saw the same forces at work in that body which had "thwarted the savings of several hundred millions" he sought to effect at the last session. He renewed his expenditure and tax recommendations, and concluded: "Every principle of sound governmental management and wise economic policy calls for the prompt balancing of the Federal budget."

Congress responded to this message by killing the President's sales tax proposal on Jan. 20, by an adverse vote of the House Ways and Means Committee. Although the House voted to extend the one-year gasoline tax to the fiscal year 1934, the Senate took no action on the measure. The President's budget fared no better on the expenditure side. The House shelved his proposal for the administrative consolidation and regrouping of 58 bureaus and commissions, which he embodied in a series of executive orders. It was estimated that these consolidations would have brought about large economies. Both houses of Congress proceeded in a lackadaisical fashion with the appropriations, making practically no effort to reduce expenditures. This attitude provoked *The New York Times* to say editorially: "Congress has apparently believed that the credit of the Federal Government is inexhaustible, and that balancing the budget is a less important task than debating. . . ."

Appropriation Bills.—Congress did not seem to care if the appropriation bills were not passed by the end of the short session. With the exception of the first deficiency bill, the Senate did not pass any of the appropriation bills before February. Its action on these bills was crowded into the last three weeks of the session. Numerous amendments were made to the appropriation bills by both Houses. All of these bills had to be finally adjusted by conference committees, an unsatisfactory and time-consuming procedure. There were more than the usual number of riders, indicating that Congress was unable to pass legislation on disputed matters by the normal process. By the end of the session, seven of the nine regular appropriation bills and two deficiency bills were passed by Congress and approved by the President. The executive and independent offices bill was subjected to a pocket veto by the President, and the District of Columbia bill died in conference.

APPROPRIATION BILLS ENACTED BY SECOND SESSION OF THE 72ND CONGRESS

Name of Bill	Amount
1. Agriculture (approved Mar. 3)	$100,209,091
2. Interior (approved Feb. 17)	43,753,935
3. Legislative (approved Feb. 28)	16,689,285
4. Navy (approved Mar.3)	308,669,285
5. State, Justice, Commerce, and Labor (approved Mar. 1)	102,616,399
6. Treasury and Post Office (approved March 3)	957,416,597
7. War (approved March 4)	349,840,749
8. First deficiency (approved January 30)	3,756,535
9. Second deficiency (approved March 4)	31,985,685
Total	$1,914,937,561

The first deficiency appropriation bill, as originally passed by Congress, was vetoed by President Hoover on Jan. 24. This bill carried a provision authorizing a congressional committee to review all cases where a tax refund of over $20,000 was involved. The President maintained that such provision was a legislative infringement on an executive function. He therefore vetoed the bill on constitutional grounds. His veto was upheld and the bill was accordingly revised, repassed by Congress and returned for his signature on Jan. 30. The executive and independent offices bill, which received a pocket veto, carried among other things an appropriation of $966,000,000 for veterans' relief. It had passed Congress without a record vote in either House. Since President Hoover had recommended large reductions in the pensions and other allowances to veterans, and Congress had disregarded his recommendations, he felt justified in withholding his approval of the bill.

President Roosevelt and Congress.—Immediately following his inauguration, President Roosevelt called an extra session of the 73rd Congress. On March 10, he sent a message to this session in which he elaborated on the financial situation of the government. "Our government's house," he said, "is not in order and for many reasons no effective action has been taken to restore it to order. . . . Too often in recent history liberal governments have been wrecked on rocks of loose fiscal policy. . . . The members of Congress and I are pledged to immediate economy. . . . The proper legislative function is to fix the amount of the expenditure, the means by which it is to be raised and the general principles under which the expenditures are to be made. The details of expenditure, particularly in view of the great present emergency, can be more wisely and equitably administered through the Executive."

In response to this request for broad powers with regard to fiscal matters, Congress passed the Economy Act, which received the President's approval on March 20. The first part of this law practically swept away all existing veterans' legislation, and established a new system intended to distinguish, with certain exceptions, between disabilities resulting from war service and those having no connection with it. Authority to put the new system into operation was vested in the President. It was estimated, at the time, that this system would save the government about $400,000,000. The second part of the law authorized the President to fix all Federal salaries in accordance with changes in the cost of living, so long as the reductions did not exceed 15 per cent. It was estimated that these reductions would save $20,000,000 in the military and naval services and $105,000,000 in the civilian departments of the government. It has been observed, however, that the savings thus anticipated by this law "constitute withdrawals, whether warranted or not, from the purchasing power of a considerable number of the people of the country, in favor of reduced taxation or public indebtedness.''

On March 28, President Roosevelt issued an order reducing practically all Federal salaries by 15 per cent, effective April 1. In July, this order was extended to Jan. 1, 1934. Early in April, the President also issued an order establishing the new system for pensions and other benefits paid to veterans. This order immediately brought a storm of protest from Congress, the veterans and their friends. A demand arose for less drastic economies, which resulted in writing into the executive and independent offices appropriation bill a provision to this effect. Notwithstanding this provision, the President announced in June that reductions in salaries, pensions, and administrative costs, amounting to $1,000,000,000 would be realized in the budget for the next fiscal year.

More Appropriations.—The special session passed the two general appropriation bills which the regular session of the previous Congress had failed to enact, and, in addition, two more deficiency bills. These bills and the amounts authorized by each of them were as follows:

1. Executive and independent offices (approved June 16)...	$631,802,546
2. District of Columbia (approved June 16)............	30,375,834
3. Third deficiency (approved May 29)..................	994,597
4. Fourth deficiency (approved June 16).................	3,610,079,670
Total.................	$4,273,252,647

Omitting the appropriations carried in the fourth Deficiency Act, which are mainly for emergency purposes, the total appropriations enacted by the second session of the 72nd Congress (listed above) and by the special session of the 73rd Congress amount to $2,578,110,538. Including all regular and Deficiency Appropriation Acts, the grand total appropriations are $6,188,190,208. But the latter amount does not include all the commitments of the government under the so-called emergency acts.

Contingent Liabilities.—The financial commitments of the National Government under the recovery program of the New Deal have been variously estimated, ranging all the way from $6,000,000,000 to $12,000,000,000. A recent tabulation of the emergency appropriations from treasury funds, made during the special session of the 73rd Congress, is as follows:

1. Public Works Administration (PWA), June 16.......	$3,300,000,000
2. Agricultural Adjustment Admin. (AAA), May 12.......	100,000,000
3. Farm mortgages, May 12....	65,000,000
4. Home Owners' Loan Corporation, June 13..........	100,000,000
5. Federal Deposit Insurance Corp., June 16............	150,000,000
6. Farm Credit Administration, June 16..................	40,000,000
7. Miscellaneous acts..........	6,215,000
Total.................	$3,761,215,000

Certain appropriations were already in force at the time the above appropriations were made. An appropriation of $329,660,000 for emergency relief and construction had been authorized July 21, 1932, and on March 31, 1933, an authorization for reforestration work, amounting to $101,875,200, had been transferred from other funds in the treasury. The total of these authorizations, added to the appropriations listed above, make a grand total of old and new emergency appropriations, amounting to $4,192,750,200.

In addition to the emergency appropriations, just noted, the special session of the 73rd Congress granted borrowing power to the Reconstruction Finance Corporation (RFC), as follows:

Farm mortgages, May 12, 1933.	$300,000,000
Emergency relief, May 12.....	500,000,000
Aid to insurance companies, June 10..................	50,000,000
Home Owners' Loan Corporation, June 13...............	200,000,000
Total.................	$1,050,000,000

A first authorization, on Jan. 22, 1932, had granted borrowing power to the RFC of $1,500,000,000. On July 21, a second authorization of $1,800,000,000 was granted for emergency relief and construction. The following day a third authorization of $125,000,000 was granted for the Federal Home Loan Bank. The total borrowing power granted to the RFC during 1932, therefore, amounted to $3,425,000,000. But on June 16, 1933, this amount was reduced under the NIRA by $400,000,000, leaving a grand total borrowing power for the RFC of $4,075,000,000. In addition, the RFC has indefinite borrowing power under the Emergency Banking Act of March 9, 1933, and under the AAA, but its actual loans under these provisions have, so far, not amounted to very much. It is claimed that most of the loans made by the RFC will be repaid. In addition to the RFC grants, the National Government has undertaken to guarantee the interest, but not the principal, on $4,000,000,000 in bonds for refinancing farm and home mortgages. It has also guaranteed $50,000,000 in bonds of the Tennessee Valley Authority (TVA).

Additional Revenues Provided. — The special session of the 73rd Congress provided certain taxes estimated to add a tidy sum to the national revenues. The beer bill, approved March 22, was calculated to increase the national income by about $150,000,000. Other taxes provided by this session were: the continuation and increase of the gasoline tax, the extension of levies under the Revenue Act of 1932, the limitations of deductibility of losses on stock and bond transactions carried over from previous years, the excise tax of 5 per cent levied on dividends, the new capital stock tax, and the 5 per cent excess profits tax. Four of these taxes, namely, the additional half-cent-a-gallon tax on gasoline, the 5 per cent tax on dividends, the similar tax on excess profits, and the capital stock tax, were to cease either when the budget was balanced or the 18th Amendment was repealed, whichever came first. The Amendment was repealed Dec. 5, 1933, hence the four levies, estimated to yield annually about $212,000,000, were discontinued on that date. These taxes are to be replaced by a liquor tax, estimated to yield perhaps twice as much. Certain processing taxes were also levied by Congress at the special session, the proceeds of which will be used to meet the payments under the AAA.

THE EXECUTION OF THE BUDGET

Financial Condition. — According to a preliminary report of the Treasury Department, the National Government closed the fiscal year, ended June 30, 1933, with a deficit of $1,786,000,000 in round figures. This deficit is said to be comparable with the one of the preceding year, which amounted to $2,880,000,000. The deficit for 1933, exclusive of $461,000,000 for debt retirements, amounted to $1,325,000,000. The revenues and other receipts for 1933, excepting trust funds, were $2,080,000,000, or only $74,000,000 larger than in 1932, notwithstanding the new and increased taxes and the receipts of nearly $99,000,000 from foreign governments. However, the effect of the new taxes had not yet been fully manifest in the receipts. The expenditures for 1933, exclusive of trust funds, aggregated $3,866,000,000, or $1,020,000,000 less than in the preceding year. The difference was accounted for by reductions in Federal salaries, certain public works, the agricultural marketing fund, refunds of receipts, the adjusted service certificate fund, and the postal deficiency, and also by the fact that the expenditures of 1932 had included large amounts for the capital stock of the RFC and the Federal Land Banks. During the fiscal year 1933, the public debt of the National Government increased by $3,052,000,000, reaching on June 30, 1933, the gross total of $22,539,000,000.

This large increase in the public debt prompted the National Economy League to send a petition to President Roosevelt in which it urged that steps should be taken immediately to balance the national budget. It saw the debt increased during the fiscal year 1934 by another $4,000,000,000, which it declared was "unprecedented in peace-time in this or any other country." "We are aware," the petition continued, "that a considerable part of the recent expenditures is represented by loans or 'investments' of which a large portion may ultimately be refunded to the Treasury over a period of years. The amount recoverable is, however, uncertain, and, in any case, represents only a minor fraction of the total national debt." The League urged that the budget should be balanced without fail for the fiscal year ending June 30, 1936. It added: "Balance there must be sooner or later and every consideration of prudence dictates that the balance be achieved soon."

Current Expenditure Reductions.—As already noted above, President Roosevelt estimated that a reduction of approximately $1,000,000,000 would result in the current operating costs of the government due to the new system of veterans' pensions and contributions, and to the scaling down of Federal salaries by 15 per cent. Administrative reorganization, of a somewhat limited character, was also undertaken by the President as a further aid to current expenditure reduction. The authority for this reorganization was provided in a rider to the Treasury and Post Office Appropriation Bill approved March 3, 1933. Although Congress had rejected President Hoover's plan for reorganization, it proposed to extend power for this purpose to his successor in office, but not without a string tied to it. Any plan of reorganization which President Roosevelt might decide upon would not become effective until it had been transmitted to Congress and 60 days had elapsed, presumably with Congress in session during the time. But this apparent joker was removed by the Economy Act, previously cited, which provided that so long as the President transmitted his orders to Congress in session, such orders would become effective at the end of 60 days in spite of Congressional action or inaction.

The President took advantage of the authority thus granted to him, and on June 10, 1933 transmitted to Congress an order, consisting of 22 sections, providing for a number of changes in the administrative organization of the government. Among the more important of these changes was the establishment of a division of procurement in the Treasury Department to serve as a kind of central purchasing agency for the government, the creation of a division of disbursement in the same department to act as a central pay office for the government, the abolition of the Shipping Board, and the shifting and consolidation of several bureaus and agencies in the departments of the Interior, Justice, and Labor. A few activities were reduced in importance or eliminated.

Any reductions in governmental costs through this reorganization are more than offset, however, by the vast emergency organization which has sprung up in Washington during recent months. This new structure of executive and administrative agencies has been, and is still in the process of being, erected through the medium of government corporations. To mention only a few of these corporations, there are, besides the powerful RFC, the Federal Deposit Insurance Corporation, the Home Owners' Loan Corporation, the Commodity Credit Corporation, the Federal Surplus Relief Corporation and the Tennessee Valley Authority. In addition to these agencies, there are a number of new organizations called administrations, and administrators, conservators, and coördinators. These corporations and agencies are now engaged in spending the billions of dollars made available under the national recovery program for emergency and relief purposes.

The New Accounting System.—Through the collaboration of Lewis W. Douglas, Director of the Budget under President Roosevelt, and Dean Acheson, until recently acting Secretary of the Treasury, a new accounting system was devised and installed in the Treasury Department, effective July 1, 1933. This accounting system has already become the subject of heated arguments in many parts of the country, not because the Treasury was not in need of it, but because it provided for what has been called a "double budget." The Roosevelt Administration, it seems, decided that just as war-time expenditures are funded over a long period the extraordinary expenditures of a peace-time emergency should be treated in like manner. The new accounting system was designed to put this scheme into effect, and therefore to show the current or ordinary expenditures separate and apart from the emergency or extraordinary expenditures of the government. Hence the double budget, one part showing the ordinary expenditures and the other part the extraordinary expenditures. The ordinary expenditures would be financed by the ordinary revenues and receipts of the government, and an effort would be made to bring this part of the budget into balance at the earliest moment. The extraordinary expenditures, those required by the recovery program, would be met by moneys secured from bond issues. Whether or not the two parts of the budget will tend eventually to become two distinct budgets, more or less unrelated to each other and susceptible of the financial abuses that have resulted from the "ordinary" and "extraordinary" budgets of other countries, only time will tell. "To the real issue involved in public finance," says Charles A. Beard, "it makes little difference whether by 'budget' we mean the old annual mixture of ordinary and extraordinary expenses as against total income, or whether we separate the ordinary from the extraordinary expenses (treating them as short-term and long-term expenditures) and likewise classify the income to meet them. The public will have to pay the full bill in either case."

Balancing the Budget.—What constitutes a balanced budget for the National Government, under the existing circumstances, is also a subject on which there is a variety of opinions. As indicated above, the Roosevelt Administration is attempting, for the time being, to produce a balanced budget only between the current or ordinary expenditures and the current or ordinary revenues and receipts of the government. Having accomplished this step toward sound finance, it will, presumably, turn its attention toward a gradual reduction and final liquidation of the extraordinary expenditures. The debt charges incurred in financing the extraordinary expenditures will, of course, become liabilities against the ordinary income of the government. This much is clearly indicated by a recent statement of Budget Director Douglas in which he said that "the test of a balanced budget is whether or not there is an increase in the national debt."

THE PUBLIC DEBT OF THE UNITED STATES

By H. E. Hansen

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INCREASE IN THE GROSS DEBT

The public debt of the United States at the end of November stood at the highest point since 1921 and within $3,000,000,000 of the all-time high record. The gross public debt as of Nov. 30, 1933, amounted to $23,534,115,771, against $22,538,672,560, on June 30, 1933, $19,487,002,444 on June 30, 1932, and $26,596,701,648, the all-time high record as of Aug. 31, 1919. In the first five months of the present fiscal year, the gross public debt has thus increased nearly $1,000,000,000, as compared with the rise of about $3,000,000,000 in the 1931 fiscal year. This rise was due to an excess of total expenditures over total receipts (excluding public debt retirement) of $750,322,530 and an increase in the general balance fund amounting to $245,120,681. At the present rate of expenditure, the close of the present fiscal year, will find the public debt very near to the war-time peak. The present Administration has undertaken a gigantic recovery program which among other things involves the spending of billions of dollars. At the same time, because of the long depression, revenue has been sharply reduced from the level of four years ago. If the measures undertaken to bring about business recovery are successful, the need for these extraordinary expenditures will cease and income will increase. Because of the changes which have occurred in fiscal and economic policies, a large portion of this survey will be given over to tracing the rise in public debt during the first five months of the 1934 fiscal year.

THE DOUBLE BUDGET SYSTEM

Beginning with the present fiscal year, the United States Treasury has been using a double budget system, that is, separating extraordinary or emergency expenditures from ordinary expenditures. One of the first concerns of the Administration was the balancing of the budget, because of the danger of continuing to finance deficits. A balanced budget was promised. From the standpoint of ordinary receipts and expenditures, a balance has almost been achieved. However, extraordinary expenditures must be financed and these expenditures are largely responsible for the growing public debt. The following table lists the extraordinary expenditures for the first five months of the present fiscal year:

Division	Amount
Administration of Public Works	$131,473,024
Administration for Industrial Recovery	1,842,440
Agricultural Adjustment Administration	28,700,219
Farm Credit Administration	40,000,000
Emergency Conservation Work	119,759,867
Reconstruction Finance Corporation	354,022,451
Tennessee Valley Authority	769,095
Land Bank Subscriptions	15,894,530
Deposit Insurance Corporation	365,178
Total	$692,826,804

GOVERNMENT RECEIPTS

As the result of new and increased taxes, receipts in the first five months showed a gain of about $450,000,000 over the corresponding period of last year. Total receipts including special funds, amounted to $1,136,504,402 for the five months ended Nov. 30, 1933, against $680,894,151 in the corresponding months of the previous year. The gain in revenue was almost entirely due to an increase in miscellaneous internal revenue, which includes tobacco, beer, wine, manufacturers excise and stamp taxes. Miscellaneous internal revenue totaled $629,744,915 in the first five months, against $314,499,258 in the corresponding months of last year, or a gain of $315,245,657. With the passage of repeal of the Eighteenth Amendment, a large new source of revenue was opened up to the Government, although elimination of certain taxes under the National Industrial Recovery Act will partly offset the gain from liquor levies. It has been estimated by Treasury experts that a $2.20 whisky tax would yield a revenue of about $430,000,000, while total liquor yields, including revenue from beer and taxes on other distilled spirits, would reach about $750,000,000. The loss from the automatic expiration of special taxes levied under the NRA is estimated at about $227,000,000. It is also expected, that if liquor and beer taxes should bring in double the revenue lost by repeal of the special taxes, the Administration will repeal about $20,000,000 ''nuisance'' taxes, including those on candy and chewing gum, soft drinks, radios, refrigerators, matches, firearms and ammunition.

The rise in our volume of exports is reflected in the gain in custom receipts. Custom receipts in the first five months of the present fiscal year totalled $150,067,582, a gain of $33,344,000 over 1932. A gain in domestic business activity will, of course, bring about greater increases in imports, which will be reflected in increased customs revenues. Income taxes, however, were sharply lower in the first five months, declining about $10,000,000 to $192,022,035. The processing tax on farm goods, part of the recovery program and a new source of revenue, yielded $87,155,334. Two revenue items which did not appear on the Treasury statement of receipts last year, are principal and interest payments received on foreign obligations. Principal payments amounted to $179,595, while interest payments totaled $11,189,093.

ORDINARY EXPENDITURES

Ordinary expenditures (extraordinary expenditures having been listed above) amounted to $1,216,143,174 in the first five months of the 1934 fiscal year, against $1,432,205,594 in the corresponding period of last year. Expenditures for last year include $400,674,077 advanced to the Reconstruction Finance Corporation, this item now being listed under emergency expenditures. Internal revenue refunds disclosed a decrease of about $5,000,000 from last year, while the postal deficiency was cut to $12,002,999 from $45,078,597. Interest on the public debt, however, rose to $246,606,419 from $232,023,237.

DEFICIT COMPARISONS

The total deficit of the Government for the first five months of the present fiscal year, including emergency expenditures, amounted to $772,465,575 against a deficit of $1,151,985,671 in the first five months of the 1933 fiscal year. Excluding emergency expenditures the deficit in the first five months amounted to $79,638,772. Trust and contributed funds showed an excess of receipts amounting to $16,952,545. Allowing for this surplus and for public-debt retirement, the total excess of expenditures in the first five months amounted to $750,322,530, against $1,151,978,520 last year.

ANALYSIS OF PUBLIC DEBT RECEIPTS AND EXPENDITURES

During the first five months of the present fiscal year, $4,475,484,926 in new securities were issued by the Government and $3,480,041,715 retired. For the corresponding months of 1932, the totals were $3,854,304,590 and $2,535,293,197, respectively. The Treasury this year obtained the largest amount of money through issuance of Treasury bonds, with receipts from issuance of Treasury bills a close second. In the first five months of the 1932 fiscal year, no Treasury bonds were issued, the principal source of receipts being from Treasury notes. New Treasury bonds issued by the Government amounted to $2,180,378,300. Receipts from Treasury bills amounted to $1,653,105,000 against $1,190,161,000, while receipts from Treasury notes totaled only $353,865,000 this year against $2,053,161,000 last year. Treasury bills retired during the first five months this year amounted to $1,649,821,000 against $1,166,086,000 last year. Certificates of indebtedness retired amounted to $921,696,850 against $1,273,107,850, while Treasury bonds retired totalled $5,189,000 against $5,500. A notable change was the retirement of $844,914,750 of Fourth Liberty bonds, which compares with $1,000 retired last year.

RECEIPTS IN THE 1933 FISCAL YEAR

Receipts, in spite of increased and new taxes, showed only a small gain in the 1933 fiscal year, and this increase is attributable to the receipt of certain war debt payments. In the preceding year, no war debt payments were received because of the debt moratorium. Total receipts, exclusive of trust funds, amounted to $2,079,696,741 as against $2,005,725,437, or a gain of $73,971,304. War debt payments in the 1933 fiscal year amounted to $98,757,726. Total receipts including trust funds amounted to $2,238,356,181 against $2,121,228,006. It is, of course, erroneous to suppose that the new and increased taxes did not benefit the Government, because without them revenue would have declined.

Receipts of income taxes in particular showed the effect of the business depression, revenues from this source declining from $1,057,335,853 to $746,194,569, or a drop of $311,141,284. Miscellaneous internal revenue rose, however, the result of the new taxes, from $503,315,504 to $857,858,123, or a gain of $354,542,619, offsetting the drop in income taxes. Total internal revenue showed a slight gain, rising from $1,560,651,357 to $1,604,052,692.

EXPENDITURES IN THE 1933 FISCAL YEAR

Expenditures during the fiscal year showed a sharp decrease to $3,804,425,295 from $4,813,922,599. However, 1933 expenditures did not include money advanced to the RFC, while in 1932, a $500,000,000 appropriation to the RFC was included in regular expenditures. Other principal items showing decreases in 1933 were: For additional Federal Land Bank stock, $125,000,000; for Treasury Department, $21,000,000, representing largely a reduction in expenditures under the Settlement of War

Claims Act of 1928; for War Department, $31,000,000; for Department of Agriculture, $68,000,000, largely due to reduced appropriations for good roads; for refund of receipts, $30,000,000; for postal deficiency, $86,000,000; for Veterans Administration, $119,000,000, due primarily to a reduction of $100,000,000 in the credit to Adjusted Service Certificate Fund; for Shipping Board, $24,000,000, on account of reduced expenditures from the construction fund.

Partly offsetting these decreases, were gains of $90,000,000 on account of interest on public debt, $49,000,000 on account of public retirements and $34,000,000 for distribution of wheat and cotton for relief. It can readily be seen that a large part of the cut in expenditures occurred in special items, which are now not included in ordinary expenditures. Net payments to the RFC in the fiscal year 1933 amounting to $1,277,038,168 were carried as a special item and not as a budgetary entry. Special funds in the 1933 fiscal year showed an excess of receipts amounting to $2,475,289, and trust funds an excess of expenditures of $5,009,989.

PUBLIC DEBT RECEIPTS AND EXPENDITURES IN THE 1933 FISCAL YEAR

During the last fiscal year, the Government received $9,697,082,824 from the sale of new issues, while retirements amounted to $6,645,412,708. Receipts and retirements in the preceding fiscal year amounted to $9,634,425,956 and $6,948,705,004, respectively. Retirements included public debt retirements chargeable against ordinary receipts.

An analysis of public debt receipts shows that the Treasury, during the 1933 fiscal year, issued Treasury notes to the amount of $3,887,541,800, Treasury bills to the amount of $3,061,895,000, and certificates of indebtedness to the amount of $2,330,327,500. In the fiscal year 1932 certificates of indebtedness accounted for the largest amount of receipts, totalling $4,707,307,050; Treasury bills accounted for $2,335,649,000; and Treasury notes accounted for $1,261,283,600. Treasury bonds issued amounted to $800,424,000, while during the last fiscal year no Treasury bonds were sold.

The principal amounts of government securities retired in the 1933 and 1932 fiscal years, respectively, are as follows: Certificates of indebtedness, $2,938,780,850 against $3,762,259,550; Treasury bills, $2,719,362,000 against $2,150,724,000; and Treasury notes, $605,069,350 against $475,523,650.

DEBIT ANALYSIS

At the close of the last fiscal year, the gross debt of $22,538,672,560 was composed of $22,157,643,120 interest-bearing debt, $65,911,170 of matured debt on which interest has ceased and $315,118,270 of debt bearing no interest. The interest-bearing debt was made up of $14,223,267,420 in bonds, $4,779,555,200 in Treasury notes, $2,200,327,500 in certificates of indebtedness and $954,493,000 in Treasury bills. Bonds are divided into three main groups: Pre-war bonds amounting to $806,017,570; Liberty bonds, amounting to $8,201,307,550, and Treasury bonds of $5,215,942,300.

CONCLUSIONS

The Administration has committed itself since March to the expenditure of huge sums of money. It has been estimated that the cost of the recovery program will be about $15,000,000,000. This means more increases in the public debt, although not by the full amount of the money spent on the recovery program, because much of the money is for loans. It is to be expected that borrowers will default on some of the loans, but a large amount of the loans will be repaid to the Government.

Because of the vastness of the Government's recovery program, the size of the public debt plays a very important part in our everyday life. The credit of the Government must be maintained, so that money can readily be borrowed to finance the recovery measures. Another important factor is that the banks of the country are holding a record amount of government bonds in their portfolios and any stress which might be put on the Government's credit would be reflected in a decline in the price of government bonds, causing large portfolio losses. The same is true of trust and other credit institutions holding government bonds. A further consideration is that should the Government find any difficulty in financing its program through borrowing, there is the constant danger that the printing presses would be started, with the resulting currency inflation. So far the Government has encountered no difficulties in borrowing short term money, issues offered being heavily oversubscribed.

If the Government's program is successful in restoring business prosperity, the debt can be readily reduced and the money spent will have been well invested. If it is not successful, we will be left with a public debt of staggering proportions. It has been suggested that one way to partly offset the cost of the recovery measures is for the Government to cut the gold content of the dollar and use the profit which it will make on its gold reserves to reduce the public debt.

STATE FINANCE

By Merlin H. Hunter

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LEGISLATIVE PROBLEMS

Within the past year the legislatures of most states have been in regular session. In addition, many special sessions have been called. The outstanding problem has not changed from the previous year. It has been to reduce expenditures, to find sources of revenue to replace those that have failed, and to find means to relieve those who are destitute and in necessitous circumstances. There has also been a marked interest among the people in the finances as is evidenced by the activities of many different types of organization.

ORGANIZED ACTIVITIES IN TAX REDUCTION

The marked decrease in the income of the people in relation to the taxes which they have been required to pay is responsible for the activity of the many types of organizations. Agricultural associations have turned their efforts to secure lower taxes for the farmer while real estate boards have been similarly solicitous for the home owner. Many of the newly organized taxpayers associations as well as many of longer existence have placed great emphasis upon tax reduction yet have offered little in the way of constructive suggestions as to how it could be accomplished. Other organizations, through extensive research, have been able to present facts which have been helpful in the accomplishment of lower taxes. That many research organizations have turned a great deal of attention to problems of state taxation is evidence of the importance of the subject. The National Industrial Conference Board, for example, has published many studies. Bureaus of research in universities have also made many studies of tax problems in their particular states. A decrease may be noted in the number of states which provide for special investigating commissions, although in New York, Texas, Maine and Connecticut provision was made for investigating commissions.

TAX DELINQUENCY

In some states, especially, it has been impossible to collect a very large percentage of the taxes levied, while in every state the problem of tax delinquency has become more acute. The result has been that many laws have been passed to lessen the severity of former delinquency requirements. Some such laws are but of a temporary nature while others have the mark of permanency. Those of a temporary character extend the time for paying taxes without a penalty, lessen or abolish the penalty or make it easier to redeem property once sold for taxes. Legislation of a permanent character provides for such practices as installment payment of taxes, postponement of date of tax sale, and the extension of the period in which redemption may be accomplished after the sale of property.

SALES TAX LEGISLATION

Extension of Levies. — With the need of funds for emergency relief and with the shrinkage of receipts from existing sources of revenue, it might be expected that the states would seek new sources of revenue. One was the sales tax. During the year fourteen states levied a sales tax of some form, while the tax previously levied by Pennsylvania expired. The tax levied in Oregon, moreover, was rejected upon referendum while a referendum has been invoked but not taken in North Dakota. Some form of sales tax, then, is being used in Arizona, California, Illinois, Indiana, Kentucky, Michigan, Mississippi, New Mexico, New York, North Carolina, Oklahoma, South Dakota, Utah, Vermont, Washington and West Virginia. In not all states has the tax in force received the sanction of the courts; in fact, test cases are being tried in some states. It is possible, therefore, that court decisions may render the above list incorrect.

Tax Base.—Considerable variation is found in the base and rate of the tax in the different states. In California, Illinois, Kentucky, Michigan, New Mexico, New York, Oklahoma, Vermont and Utah the tax is limited to retail sales. In Arizona, Indiana, Mississippi, North Carolina, North Dakota, South Dakota, Washington and West Virginia the tax applies to manufactures, jobbers and wholesalers as well as retailers. In Arizona, Mississippi, Indiana, North Dakota, South Dakota, Utah, Washington and West Virginia the tax is levied upon the sale of services as well as upon the sale of property. In most states only tangible personal property is included although in Indiana, South Dakota, Washington and West Virginia the sale of real property is included. Utah and Oklahoma go somewhat beyond tangible personal property and include admissions as a part of the tax base.

Rates.—In a few states the rate of levy is progressive. In Kentucky it ranges from 1/20 of 1 per cent to 1 per cent; in Vermont from ⅛ of 1 per cent to 4 per cent; in New Mexico the rate is $10 for sales of $3,000 or less to $1,950 on sales of more than $400,000 with an additional $25 per $1,000 sales above the $400,000. In the states which limit the tax to retail sales the levy is a flat rate ranging from ¾ of 1 per cent to 3 per cent. In states where different types of sales are taxed the rate usually varies with the type of sale. Thus in Washington the rate varies from ¼ of 1 per cent on manufacturers, to 1/5 of 1 per cent on wholesalers, ½ of 1 per cent on retailers and from 2/5 of 1 per cent to 5 per cent on the sale of services.

Exemptions. — As might be expected, many modifications to the general law are found. To square with the commerce clause of the Federal Constitution all sales entering into interstate commerce must be exempt. Likewise, because of constitutional limitations, sales to or by the Federal Government must be exempt from the levy. In many states the tax must reach a certain amount before payment is required but there is great lack of uniformity as to this amount. In many states exemptions are made on the sale of food products, but here, again, there is no uniformity. In some states each seller liable for the tax must either register with the administrative authorities or secure a license while in others only the payment of the tax is required.

INCOME TAXES

State legislatures gave considerable attention to the taxation of personal and corporation incomes. Many states in which such taxes already existed changed their law in regard to the income tax while such taxes were introduced in Alabama, Arizona, Kansas, Montana, Mississippi and New Mexico. An income tax law was passed in California but vetoed by the Governor. In these states using income taxes for the first time there is considerable difference in the requirements of the laws. Kansas allows an exemption from the calculated tax rather than a certain income which is not taxable. In Alabama the exemptions are high, $1,500 for single individuals and $3,000 for married persons. In the other states the exemption is lower. Rates, likewise, vary considerably. In Alabama and Mississippi, they are progressive from 1 to 5 per cent. In Arizona the rate upon personal incomes is from 1 to 5½ per cent and upon corporate incomes from 1 to 6 per cent. In the other states the rate upon personal incomes is from 1 to 4 per cent. In the states other than Arizona the rate upon corporate incomes is a flat rate of either 2 or 3 per cent. In the states in which income taxes have existed many changes may be noted. In general, these have taken the form of lower exemptions, higher rates and an extension of emergency legislation. The latter is noted in both Wisconsin and New York. There is some tendency to designate a part or all of the receipts from income taxes to particular funds. The movement towards the use of personal income as a base for state revenue, in spite of constitutional difficulties, has been rather rapid. Wisconsin really made the start in 1911 while following the 1933 legislation 27 states make some use of such taxes. It would doubtless be in use in other states if it were constitutionally permissible. The emergency needs have, of course, had some influence, but in the end the inherent justice of such a base for tax levy must make itself felt. When one reflects that it makes no difference upon what base a tax is levied, it can only continue to be paid from income, then the logic of income as a tax base becomes apparent.

GASOLINE AND AUTOMOBILE TAXES

Two interesting facts to be noted in connection with levies upon gasoline and automobiles are that in no state was the rate changed in the levy upon gasoline while the tendency was to lower the license charge upon automobiles. In some states a larger share of the receipts from the gasoline tax have been diverted to the payment of road bonds while in some the emergency has been responsible for a diversion of a part of the receipts to unemployment relief. Ohio has joined the list of states which diverts a part of the receipts to education. In a few states changes were made to perfect the administration of the tax.

SPECIAL TAXES ON COMMODITIES

Many states have designated particular commodities or transactions as a base for special taxes. As might be expected, the legalization of beer presented a source of revenue which was quickly utilized. Most states license the vendors and in addition levy a tax upon the beer. The amount of the tax varies considerably, ranging from 50 cents a barrel to $4.66. In most cases receipts go into the general revenue fund although in a few states a part of the proceeds are used for the support of education. In some states the tax system has been extended to secure revenue from what might be called luxury expenditures. Thus in Ohio all admissions above 40 cents are taxed; a tax of 10 per cent is levied upon the sale of all cosmetics, membership dues in different clubs are taxed 5 to 10 per cent; and a tax ranging from 10 to 20 per cent is levied upon pari-mutuels. In other states new taxes are levied upon admissions to have horse races, malt, cigarettes and tobacco.

INHERITANCE TAXES

Fewer changes have been made in inheritance tax laws than in previous years. This may be accounted for because conformity to Federal credit provisions has already been attained as well as substantial justice among states through reciprocity developments. In a few states, however, rates have been increased, and in a few exemptions to some classes of benefactors have been lowered. Rates were increased in North Carolina, North Dakota, Oregon and New York. In the latter case, however, it is an emergency measure, the increase to be removed in 1935.

OTHER TAXES

Intangible Property.—The problem of taxation of intangible property still proves troublesome and legislation in a few states has been directed to it. New Hampshire and Tennessee have gone to the income base in an attempt to reach this type of property while Arizona has resorted to classification.

Chain Stores.—More attention has been given to taxes upon chain stores. Legislation in Idaho, Maine, Maryland, Michigan, Minnesota, Montana and West Virginia placed special taxes upon chain stores. Rates already in effect were increased in Indiana and Wisconsin. In a few states a part of the receipts from the tax on chain stores is placed in the educational fund.

Banks and Securities.—Many states have given some attention to the taxation of banks. The trend is towards a tax on net income in which is included the income from government securities.

TAX LIMITATION AND ADMINISTRATION

With the increasing tax burden the demand has become more and more insistent that some definite limit be placed upon the amount of taxes which can be levied. This has been especially true as it applies to the tax upon property. In a few cases, as in Arkansas and New Mexico, constitutional amendments have been submitted to a vote of the people. By amendment in Oklahoma the limit was placed at 15 mills on the dollar with a possibility of increase only upon vote of the people. In California the amount of state money to be raised from the property tax is placed at not more than 25 per cent; neither can the expenditures for any biennium be increased by more than 5 per cent of the preceding one without a 2/3 vote of the General Assembly.

Administrative changes have been aimed at economy and efficiency. This is shown by the reduction of administrative officials and in the centralization of authority. Thus Illinois now has three tax commissioners instead of five. In Indiana the same 160 departments under the former arrangements have been replaced by 8. In many states, also, localities have been required to be more systematic in the use of the budget and in the administration of funds.

MODEL PLAN OF TAXATION

In 1918 a committee of the National Tax Association made a report on a plan of a model system of state and local taxation. This plan was so comprehensive that it has had a wide influence in shaping tax systems. Since 1918, however, economic conditions have changed, and in consequence the Association appointed a second committee in 1932 to report upon the same problem. This report was made at the conference of the Association held in Phoenix, Arizona, October 16-20, 1933. The report is a scholarly discussion of the current problems of state and local taxation and should be carefully studied by every one concerned with such problems.

MUNICIPAL FINANCE

By Merlin H. Hunter

Professor, University of Illinois

GENERAL

There has been an apparent lethargy in regard to local finances in spite of the fact that more than half of governmental expenditures are made by them. One reason is that such governments are close to the people who can easily see and appreciate the services being rendered and consequently are much less likely to raise serious objection to what is being done. Accurate statistics are available only for cities of more than 30,000 population. The last of these available are for 1930 and may be found in the publication of the Bureau of the Census, *Financial Statistics of Cities.* While the compilations are for cities of more than 30,000, the results may be accepted as indicative of the conditions in other local governmental units.

EXPENDITURES

Growth.—As long as the social income was increasing it was easy for governmental units to expand functions and to increase expenditures for operations already in existence without much objection from the citizens. It is only with the decrease in income of recent years that the cry for retrenchment has been heard. The data for city expenditures show that before 1930 the tendency for expenditures as a whole, as well as for the different types of services, was to increase. This is illustrated by the table below in which it will be noted that the marked tendency to increase continues from 1929 to 1930.

MUNICIPAL EXPENDITURES

(000 omitted)

OPERATION AND MAINTENANCE OF GENERAL DEPARTMENTS: 146 CITIES

Year	Total	General Government	Protection to Person and Property	Health and Sanitation	Highways
1930.......	$1,820,905	$163,614	$361,956	$180,553	$149,268
1929.......	1,730,288	140,521	339,816	174,858	147,375
1928.......	1,656,989	147,250	328,102	167,979	138,936
1927.......	1,562,615	136,848	315,362	160,259	137,892
1926.......	1,464,849	128,365	295,256	148,658	132,321
1924.......	1,287,484	111,856	259,275	130,388	109,807
1922.......	1,155,691	105,174	234,199	115,448	98,763
1919.......	697,319	72,585	146,763	75,847	65,003
1917.......	591,399	68,912	126,854	60,378	60,712
1915.......	546,568	62,793	120,696	55,758	60,615
1913.......	496,740	58,164	112,676	50,600	55,082
1911.......	452,899	53,766	106,120	45,691	52,214
1909.......	407,106	49,810	98,692	41,092	43,195
1907.......	367,367	42,703	87,885	36,899	42,718
1905.......	304,496	30,423	76,957	29,737	36,373
1903.......	278,173	30,842	71,020	25,807	34,208

Year	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
1930.......	$138,051	$637,196	$24,515	$66,060	$99,692
1929.......	116,147	622,587	23,029	61,863	94,091
1928.......	111,052	598,065	21,847	56,038	87,715
1927.......	99,806	560,668	20,167	53,839	77,771
1926.......	89,987	528,986	18,665	50,427	72,180
1924.......	79,239	475,725	15,782	41,819	63,590
1922.......	76,627	422,843	14,326	38,703	49,603
1919.......	53,262	216,701	9,079	24,204	33,870
1917.......	43,911	180,259	7,570	20,636	22,164
1915.......	38,285	162,332	7,134	20,416	18,535
1913.......	32,702	141,453	6,379	18,555	21,125
1911.......	30,647	127,604	5,939	17,114	13,801
1909.......	28,133	114,381	6,242	14,076	11,480
1907.......	24,408	102,395	4,989	11,794	13,572
1905.......	19,319	87,600	4,153	10,201	9,728
1903.......	18,280	80,853	4,067	7,457	5,634

Per Capita Expenditures.—While some of the absolute expenditures just noted may appear large, yet little significance can be attached to them. The size of an expenditure becomes intelligible in terms of service when one discovers the number of individuals among whom it is divided. The per capita expenditures of the cities, both as a whole and for particular items has varied greatly from time to time, but the general tendency has been to increase. Thus as a whole the per capita expenditures of cities increase from $13.19 in 1903 to $44.29 in 1930, or an increase of about 230 per cent. The following table shows the change in per capita expenditures for selected years.

PER CAPITA EXPENDITURES

Year	Total	General Government	Protection to Person and Property*	Health and Sanitation	Highways	Charities, Hospitals, and Corrections	Education		Recreation†	Miscellaneous*
							Schools *	Libraries†		
1930....	$44.29	$3.82	$8.68	$4.28	$3.64	$3.12	$16.28	$0.61	$1.59	$2.28
1929....	43.45	3.66	8.46	4.33	3.70	2.78	16.14	0.59	1.55	2.25
1928....	42.43	3.66	8.33	4.24	3.56	2.70	15.80	0.57	1.44	2.14
1927....	40.77	3.46	8.13	4.13	3.60	2.49	15.08	0.53	1.40	1.94
1926....	35.99	3.32	7.77	3.90	3.55	2.29	14.49	0.50	1.34	1.83
1924....	35.61	3.01	7.10	3.55	3.07	2.08	13.52	0.44	1.15	1.67
1922....	33.15	2.94	6.66	3.25	2.87	2.08	12.50	0.41	1.09	1.34
1919....	21.63	2.22	4.53	2.34	2.04	1.59	6.88	0.28	0.74	1.01
1917....	18.96	2.18	4.04	1.93	1.96	1.36	5.89	0.25	0.66	0.69
1915....	18.45	2.10	4.06	1.86	2.06	1.26	5.58	0.24	0.68	0.61
1913....	17.23	2.00	3.89	1.75	1.93	1.11	4.98	0.22	0.63	0.71
1911....	17.62	2.08	4.12	1.77	2.04	1.17	5.04	0.23	0.65	0.53
1909....	16.07	1.96	3.89	1.62	1.71	1.10	4.54	0.25	0.55	0.45
1907....	15.95	1.86	3.80	1.59	1.91	1.05	4.42	0.21	0.51	0.59
1905....	13.88	1.38	3.52	1.35	1.67	0.88	3.99	0.19	0.47	0.44
1903....	13.19	1.46	3.35	1.21	1.64	0.86	3.86	0.10	0.35	0.27

* Payment for pensions are included in column "Miscellaneous" for the years 1911 to 1928, inclusive; for the years 1903 to 1909, inclusive, they are included with expenses of police, fire, and school departments.

† Payments for expenses of art galleries and museums are included in column "Recreation" for the years 1911 to 1928, inclusive; for the years 1903 to 1909, inclusive, they are included with the expenses of libraries.

IMPORTANCE OF DIFFERENT MUNICIPAL EXPENDITURES

There is a wide difference in the importance attached to the different functions performed by municipalities. While over a period of years there has been some change in the relative importance of some of the items, it is interesting to note that expenditures for education have always been far larger than any other, and that the relative importance of this item has increased as the years have gone by. The attention devoted to health and sanitation has also been more marked in recent years, while protection and highways have commanded a smaller percentage of the expenditures than formerly. The following table shows the relative importance of the different services over a period of years.

PERCENTAGE OF EXPENDITURES FOR DIFFERENT FUNCTIONS

Year	General Government	Protection to Person and Property	Health and Sanitation	Highways	Charities, Hospitals, Corrections	Education		Recreation	Miscellaneous
						Schools	Libraries		
1930...	8.6	19.6	9.7	8.2	7.0	36.8	1.4	3.6	5.1
1929...	8.4	19.5	10.0	8.5	6.4	37.2	1.4	3.6	5.2
1928...	8.6	19.6	10.0	8.4	6.4	37.2	1.4	3.4	5.0
1927...	8.5	20.0	10.1	8.8	6.1	37.0	1.3	3.4	4.8
1926...	8.5	19.9	10.0	9.1	5.9	37.2	1.3	3.4	4.7
1924...	8.5	19.9	10.0	8.6	5.9	38.0	1.2	3.2	4.7
1922...	8.9	20.1	9.8	8.7	6.3	37.7	1.2	3.3	4.0
1919...	10.2	21.0	10.8	9.4	7.3	31.8	1.3	3.4	4.7
1917...	11.5	21.4	10.1	10.4	7.2	31.1	1.3	3.5	3.5
1915...	11.4	22.0	10.1	11.2	6.8	30.2	1.3	3.7	3.3
1913...	11.6	22.6	10.1	11.2	6.4	28.9	1.3	3.7	4.2
1911...	11.8	23.4	10.1	11.6	6.6	28.6	1.3	3.7	3.0
1909...	12.2	24.2	10.0	10.6	6.9	28.2	1.5	3.4	2.8
1907...	11.7	23.8	9.9	12.0	6.6	27.7	1.3	3.2	3.6
1905...	10.0	25.3	9.7	12.0	6.3	28.7	1.4	3.4	3.2
1903...	11.1	25.3	9.2	12.4	6.5	29.3	1.5	2.7	2.1

PUBLIC UTILITIES

Many cities operate some form of public service enterprise, that is, according to the Census Bureau, "Those enterprises, or branches of municipal service which are established and maintained by city governments for the purposes of providing the public, or the public and the city, with some utility or service, such as water, electricity or gas." Of these utilities the systems which supply water are far more important than any other. The finances for such enterprises, for a number of years, are shown in the following table:

OPERATION OF MUNICIPAL WATER PLANTS

(000 omitted)

Year	Revenue Receipts	Payments		
		Total	Operation and Maintenance	Outlays
1930	$171,383	$223,876	$76,211	$147,665
1929	162,957	162,952	73,864	89,088
1928	155,025	154,657	73,207	81,450
1927	....	....	....	....
1926	147,315	164,878	69,173	95,705
1924	127,484	170,805	65,609	105,196
1922	108,426	*	56,923	*
1919	86,273	80,675	41,687	38,988
1917	76,964	63,918	31,886	32,033
1915	70,600	76,609	30,218	46,391
1913	65,318	91,276	29,227	62,049
1909	57,106	76,453	23,519	52,933
1905	47,397	41,582	18,677	22,904

* Not reported separately.

OTHER EXPENDITURES

The expenditures just described are designated as "expenses" by the Census Bureau. In addition to these are a number of other expenditures, the most important of which are for interest and outlays. The interest payments are for the funded and floating debt, special assessment loans, and other minor types of borrowing. In 1930 the total interest payment was $405,153,000. Of this amount 85.7 per cent was paid on funded and floating debt, 7.8 per cent on special assessment loans, and 6.5 per cent on miscellaneous debt obligations. Expenditures for outlays comprise the amounts paid for the acquisition and construction of more or less permanent properties and permanent improvements, including payments for additions made to those previously acquired or constructed. Such payments in 1930 reached a total of $1,115,220,000. This exceeded the increase in the net debt for the year by $654,378,000, indicating that a large part of the outlay was made from other borrowing. The relative importance of expenditures for operation and maintenance, interest and outlays is shown in the following table:

IMPORTANCE OF CERTAIN TYPES OF EXPENDITURE

Year	Operation and maintenance	Interest	Outlays
1930.....	61.2	8.9	29.9
1929.....	62.7	8.5	28.4
1928.....	60.9	8.5	30.6
1927.....	59.0	8.1	32.9
1926.....	60.4	8.2	31.4
1924.....	61.2	7.9	30.9
1922.....	62.9	9.8	27.3
1919.....	68.0	10.9	21.1
1917.....	62.9	11.0	26.1
1915.....	58.9	10.4	30.7
1913.....	58.6	9.7	31.7
1911.....	56.3	9.5	34.2
1909.....	57.0	9.4	33.6
1907.....	56.9	8.5	34.6
1905.....	58.2	9.2	32.6
1903.....	58.4	8.3	33.3

SOURCES OF REVENUE

Property Taxes.—The revenue of cities arises from a number of sources. In most cities more than 90 per cent of the funds which go into the general revenue fund come from the general property tax. This is a tax levied against real and personal property. In addition to the general property tax the Census Bureau designates certain taxes as special property taxes. Such include taxes upon the capital stock of corporations, upon savings banks and other financial institutions and upon insurance companies. Included in this, also, would be taxes levied upon mortgages at time of recording, taxes upon incomes and estates, upon investments, and a wide range of specific taxes such as a definite levy upon each telephone pole, upon each ton of grain, etc.

Poll and Business Taxes.—In many cities, also, some form of poll tax continues to be used, although such taxes are much less important than formerly. No generalization can be made as to method of levy since this varies greatly from city to city. In addition, business and non-business license taxes make up a large group of levies upon different types of business activities, some of which, of course, are levied primarily for regulative purposes. The latter include such levies as those upon dogs, dance halls, etc. Receipts from the special assessment constitute an important item, but such do not enter the general revenue fund. In some places at a particular time subventions and grants are an important source of income while in some cities, also, the earnings from public service enterprises are not unimportant. The relative importance of the more important sources of revenue over a period of years is shown in the following table.

PERCENTAGE OF RECEIPTS FROM DIFFERENT SOURCES OF REVENUE

Year	General Property Tax	Other Taxes	Special Assessments	Subventions and Grants, Donations, and Pension Assessments	Earnings of Public Service Enterprises	Other Revenues
1930	65.9	6.2	6.7	5.8	9.4	5.9
1929	64.7	6.4	7.2	5.8	9.8	6.1
1928	66.1	5.8	7.6	5.4	9.2	5.9
1927	66.1	5.7	7.7	4.9	9.6	6.2
1926	65.7	5.9	7.2	4.9	10.0	6.4
1924	66.1	5.7	5.9	5.3	10.3	6.8
1922	66.9	5.2	4.8	5.9	9.0	8.2
1919	66.0	7.6	5.6	4.1	10.2	6.4
1917	64.3	7.4	7.8	4.0	9.9	6.6
1915	62.4	7.8	8.5	4.2	10.0	6.9
1913	62.4	8.5	8.2	4.5	9.9	6.6
1911	61.9	8.7	8.4	4.6	10.6	5.8
1909	61.0	9.7	8.4	4.9	10.9	5.3
1907	59.4	10.6	8.2	4.8	11.2	5.8
1905	61.5	9.6	7.9	4.7	11.4	5.0
1903	61.4	9.8	7.6	4.3	11.5	5.5

PER CAPITA TAX BURDEN

That the tax burden imposed by cities has been increasing much more rapidly than population is readily seen when one notes the change in the per capita amounts collected from different sources over a period of years. Because of the retrenchment in expenditures necessitated by economic conditions the trend indicated in the following table is not likely to continue.

PER CAPITA RECEIPTS FROM DIFFERENT SOURCES

Year	Total	General Property Tax	Other Taxes	Special Assessments	Subventions and Grants, Donations, and Pension Assessments	Earnings of Public Service Enterprises	Other Revenues
1930	$73.32	$48.34	$4.57	$4.91	$4.25	$6.92	$4.33
1929	69.63	45.07	4.43	5.01	4.02	6.82	4.28
1928	72.11	47.67	4.18	5.52	3.87	6.65	4.23
1927	69.77	46.09	3.95	5.36	3.40	6.67	4.29
1926	66.14	43.46	3.90	4.75	3.23	6.60	4.20
1924	58.41	38.59	3.33	3.43	3.12	6.00	3.96
1922	53.57	35.85	2.80	2.58	3.13	4.83	4.38
1919	35.26	23.29	2.68	1.98	1.43	3.61	2.27
1917	31.97	20.57	2.37	2.50	1.28	3.13	2.12
1915	30.00	18.73	2.36	2.54	1.26	3.03	2.08
1913	28.55	17.82	2.42	2.34	1.28	2.81	1.88
1911	28.07	17.37	2.44	2.35	1.30	2.98	1.63
1909	26.42	16.14	2.48	2.22	1.28	2.89	1.40
1907	24.67	14.64	2.63	2.02	1.18	2.77	1.43
1905	22.79	14.01	2.17	1.80	1.08	2.60	1.14
1903	21.14	12.98	2.06	1.60	0.91	2.42	1.16

MUNICIPAL INDEBTEDNESS

Receipts from sources of revenue may either just pay expenses, more than pay expenses, or fail to pay them. In many cases the administration of the finances have planned for a surplus but because of a shrinkage in revenues have had to resort to borrowing. In many cases, also, where borrowing has been used to excess during the last few years, cities find themselves unable to pay the interest on their obligations and their securities are in default. This condition has resulted in much attention to the problems of financing local governments with the query being put with renewed force as to whether more stringent regulations should not be put upon the borrowing power of local governmental units.

In the calculations of the Census Bureau municipal indebtedness is divided into two distinct groups, funded debt and floating debt. The former includes all obligations represented by formal investments which have a number of years to run and for the redemption of which no assets other than a sinking fund have been specifically designated. The latter, on the other hand, includes such indebtedness as is evidenced by warrants and accounts payable, by short term bonds, etc. The gross indebtedness is, of course, the total amount, while to subtract from this the value of the assets in a sinking fund will indicate the net indebtedness. The following table shows the total indebtedness, the sinking fund assets, and the net indebtedness for certain years:

MUNICIPAL INDEBTEDNESS

Year	Funded or Fixed, and Floating Debt	Sinking Fund Assets		Net Debt	
		Amount	Per Capita	Amount	Per Capita
1930	$7,808,379,591	$1,840,816,470	$47.20	$5,967,563,131	$153.02
1929	7,233,151,957	1,703,316,343	44.45	5,529,835,614	144.33
1928	6,860,660,257	1,607,178,159	42.72	5,253,482,098	139.27
1927	6,456,781,181	1.513,273,535	41.10	4,943,507,646	134.27
1926	6,040,399,634	1,407,596,435	38.93	4,632,803,199	128.13
1924	5,057,023,870	1,215,043,841	34.82	3,481,980,029	110.09
1922	4,332,114,718	1,051,468,771	31.27	3,280,645,947	97.57
1919	3,352,688,786	811,516,426	25.93	2,541,172,360	81.18
1917	3,150,424,610	704,573,046	23.26	2,445,851,564	80.75
1915	2,866,008,818	620,102,406	21.50	2,245,906,412	77.86
1913	2,490,461,618	540,454,805	19.20	1,950,006,813	69.28
1911	2,305,059,142	496,230,750	11.52	1,808,828,392	67.52
1909	1,959,162,993	422,063,594	16.81	1,537,099,399	61.21
1907	1,657,320,345	362,441,586	15.68	1,294,878,759	56.04
1905	1,438,741,403	319,395,648	14.53	1,119,345,755	50.94
1903	1,223,101,328	290,096,696	13.90	933,004,632	44.71

RECENT DEVELOPMENTS

The foregoing analysis presents the most recently available statistics for cities. It is regretted that they are not for the past year. If such figures were available they would show a tendency towards reduced expenditure. Groups of taxpayers have been insistent in their demands for reduced taxes and in many cases marked decreases in budgets have occurred. The exigencies of the situation, moreover, have led many to question the economy and efficiency of the myriad of small and often overlapping political jurisdictions. Some examples may be found of where consolidations have resulted or of where the local political units have been shorn of their functions. A great deal of attention is being centered on the method of handling funds of municipalities and other minor political bodies. Investigation has shown a great waste of funds through poor and inefficient methods. In some states uniform systems are now being required, while in others some reform measures are seriously being considered. The indebtedness problem has also been brought to the front. Many defaults on interest and principal have led to the query as to whether more stringent regulations should not be imposed upon the borrowing power of local governments. It is to be hoped that the emergency will result in many improvements in local finances.

TAX LEGISLATION

By Beulah Bailey

Librarian, New York State Department of Taxation and Finance

The year 1933 has been unprecedented in legislative sessions. In addition to the 43 regular sessions, there have been to December 39 special sessions. Mississippi is the only state not convening. Finance was again as in 1932 the paramount question.

TAX COLLECTION

Legislation has again this year eased the payment of taxes. The great disadvantage to waiving of penalties and interest, compromises and installment payments is that the man who has the money will avail himself of the easy payment plans as well as the man who is forced to it by lack of money. Eighteen states are permitting the payment of delinquent taxes on the installment plan. Arizona, Indiana and Washington permit 20 semi-annual installments; Michigan, Oregon and South Dakota, 10 payments; Ohio, 6; Texas, 5; New Jersey and North Carolina payments over a 5-year period; and the remaining states, Alabama, Idaho, Maryland, Missouri, New York, Pennsylvania, Utah and Wisconsin over a shorter period. Arizona, Arkansas, Connecticut, Nevada, New York, Oregon, Vermont and Washington permit installment payment of current taxes. The reduction or remission of penalties and interest on delinquent taxes was legalized in 21 states. Colorado, North Carolina, Pennsylvania and Washington permit compromises. A bonus for payment in advance is authorized in Idaho, Kansas, Maine, Massachusetts and Vermont. Illinois passed a tax receivership law which applies only to income producing property which is delinquent and permits the county treasurer to collect the income and apply it to the taxes, penalties and operating charges of the property. Iowa permits the court in any action to foreclose a mortgage, to order part of the income of the real estate applied toward the payment of taxes coming due during the period of redemption from foreclosure.

SALES TAX

Enactments and Changes.—Fifteen states this year levied a sales tax. It was rejected by the people in North Dakota and Oregon. In New Mexico a referendum petition was filed. The referendum is to be held November, 1934. The tax was temporarily suspended but the Attorney General has held that it should not be suspended by the filing of a referendum petition, so the tax will be effective as of December 1, 1933. Oregon convened in Special Session, November 19, 1933, and enacted a new sales tax of 1½ per cent on the gross proceeds from sales of tangible personal property and utility service at retail. Oregon also passed legislation making it permissible for certain municipalities to levy a sales tax. There is little doubt but what the referendum will again be invoked. The constitutionality of the sales tax was questioned in Illinois, South Dakota, Michigan and Washington, but the courts have held it constitutional in every case. The 1933 sales tax levy is now effective in Arizona, California, Illinois, Indiana, Michigan, New Mexico, New York, North Carolina, Oklahoma, South Dakota, Utah, Vermont and Washington. The recently enacted Oregon tax does not become effective until March 10, 1934. In West Virginia the former gross sales tax was changed to a tax based on gross income. With previously enacted laws in Delaware, Kentucky, Mississippi, Pennsylvania and Virginia this gives a total of 19 states in which the general sales tax is now in force. (In Delaware, Kentucky, New Mexico, Pennsylvania, Virginia and Vermont it is a merchants' license tax based on sales). The sales tax is an emergency tax in Arizona, Illinois, New York, North Carolina, Oklahoma, Oregon, South Dakota and Washington.

Services and Retail Sales. — Services are included in the measure of the tax in Arizona, Indiana, Mississippi, South Dakota, Utah, Washington and West Virginia. The tax is on manufacturers, wholesalers and jobbers as well as retailers in Arizona, Delaware, Indiana, Mississippi, North Carolina, South Dakota, Washington and West Virginia. It is a tax on retail sales of tangible personal property only in California, Illinois, Kentucky, Michigan, New York and Vermont. (Oklahoma and Utah use retail sales as the base but include amusements. In only 6 states is it a flat rate: California, 2½ per cent; Illinois, 2 per cent; Michigan, 3 per cent; New York, 1 per cent; Oregon, 1½ per cent, and Utah, 2 per cent. In the other states it varies with the amount of sale, the article sold or whether the sale is made by a manufacturer, wholesaler, or retailer and in some cases both.

Exemptions. — All the states whether or not they specify it in their law must exempt sales or services to or by the United States and sales in interstate commerce. Arizona, Indiana, Michigan, New York, Oregon and Vermont give a flat money exemption. Washington exempts all whose tax would be less than $5 a year, and in West Virginia $25 is exempt from the tax except for certain personal services where it is $6 plus $4 for married people and $2 for each dependent. Organizations not organized for profit are exempt in Arizona, Indiana, Mississippi, Washington and West Virginia. Food for human consumption is exempt in New York, North Carolina and Oklahoma. Oklahoma does not exempt food served in public eating places. Oklahoma exempts clothes costing less than $8 and containing no silk. Farm products in their original sale from the farm are exempt in North Carolina, Oklahoma and West Virginia. Gasoline is exempt in all states; gold bullion in California, all sales for resale are naturally exempt in those previously enumerated states where the tax is on the retail sale, the burden of proof that a sale is for resale being upon the person who made it.

License Fees. — In Arizona, California, Michigan, North Carolina and Utah the retailers must be licensed and pay a license fee. In New York the stores are to be licensed but in the first instance the law itself licenses everyone who makes a sale of tangible personal property, but after this initial licensing a cancelled tax check or voucher operates as a license. South Dakota requires everyone eligible to the tax to register with the tax commission.

Separate Seller Tax.—In Arizona, North Carolina and Oregon (retail tax only) the law states that the consumer is the final incidence and that the tax may be added by the seller as a separate item. Michigan provides for it in the rules and regulations. In the other states there is no "thou shall not pass it on" in the laws. Whether it is absorbed or passed on will be an individual or a collective decision.

Application of Tax Funds.—California, Indiana and New York assign the revenue from the sales tax to the general fund. North Carolina devotes it all to education, conditioned on the reduction of the real property tax. Oklahoma specifies that the revenue is to be used directly to reduce the real property tax. In the majority of the states the revenue is divided between relief, education and the general fund. Arizona alone shares with the locality for general needs.

BEER AND LIQUOR

All the states excepting Alabama, Georgia, Idaho, Kansas, Mississippi, Washington and Wyoming have a special tax on beer and light wines. Thirty-six out of the 41 have, in addition to license fees, an excise tax on beer ranging from as low as 50 cents a barrel in Montana to as high as $4.66 a barrel in New Mexico. Part of the revenue is diverted to education in Arkansas, Michigan, New Mexico, Oklahoma, South Carolina, Tennessee, Texas, Utah and Wisconsin. In nearly half of the states the revenue is shared with the locality. The sale of beer is also subject to the retail sales tax in those states in which such a tax is operative and to the Federal tax of $5 a barrel.

In only 21 states will liquor traffic be legal with the repeal of the 18th amendment. Arizona, California, Colorado, Connecticut, Delaware, Indiana, Maryland, Massachusetts, Montana, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, West Virginia and Wyoming have already passed state liquor control acts. In Nevada it is all left to the localities. In addition to the license fees, Colorado, Indiana, New York and West Virginia charge a flat rate excise fee on the amount of liquor sold; Connecticut and New Mexico a certain percentage of the gross while Rhode Island limits the wholesalers' profits to 9 per cent plus an amount for depreciation. The excess is payable into the general fund. In Indiana, New Mexico and Pennsylvania part of the revenue is to be diverted to education, and in Colorado, Massachusetts and Pennsylvania to old age relief. In the remaining states it is the general fund, either state or local or both. Montana and Pennsylvania have state mónopoly of the liquor traffic and Delaware quasi monopoly. Liquor legislation is still pending in Illinois, Michigan, Missouri, Ohio, Washington and Wisconsin.

INCOME TAXES

New Legislation.—Six states have this year passed personal and corporate income tax laws. They are, Alabama, Arizona, Kansas, Montana, Minnesota and New Mexico. The income tax enacted in 1932 was held unconstitutional in Washington. In Alabama and Minnesota the rate graduates from 1 per cent to 5 per cent. In Alabama the 5 per cent is on income in excess of $8,000 and in Minnesota on income in excess of $10,000. In Kansas, Montana and New Mexico the graduation is from 1 per cent to 4 per cent. In Montana the 4 per cent is on income in excess of $6,000, in Kansas in excess of $7,000, and in New Mexico in excess of $100,000. Arizona graduates the rate from 1 per cent to 5½ per cent on all income of $11,000 or more. Alabama's corporate income tax is a flat rate of 3 per cent and Kansas, Montana and New Mexico one of 2 per cent. Minnesota's corporate rate is the same as the personal. Arizona's graduation of the corporate tax is 1 per cent to 6 per cent on income in excess of $7,000.

The exemption variances are even greater than the rates. Arizona, following the example of Wisconsin and Washington, gives an $800 exemption for single individuals, $1,750 for married persons, and $400 for each dependent. Alabama has the highest exemption, $1,500 for single individuals and $3,000 for married. Minnesota follows with $1,200 for single and $2,000 for married. Kansas has the lowest with $750 for single individuals and $1,500 for married individuals. New Mexico grants a $1,500 exemption for married individuals and $1,000 for single individuals. Minnesota and New Mexico earmark all the revenue from the income tax "education".

Rate Changes. — Former income tax rates were increased in Idaho, North Carolina, North Dakota, Oklahoma, Oregon and South Carolina. New York and Wisconsin continue for another year the emergency rates levied in 1932. The only reduction was in California where the corporate franchise rates were reduced from 4 per cent to 2 per cent with the exception of banks where the rate is not to be in excess of 6 per cent. The offset allowance for general property taxes in the case of general business corporations is abolished. The personal income tax exemptions have been decreased in Idaho, New York, North Dakota, Oregon and South Carolina.

Additional Gross Tax.—New York levied a tax of 1 per cent on gross income. This is in addition to the regular income tax. It is not truly gross income as it is only an additional inclusion of capital gains and losses. No personal exemption is granted. Only those who are eligible for the regular income tax are eligible for this tax.

BANKS

There has been rather extensive legislation in regard to the taxation of banks. The income from government securities is this year included in net income for bank taxation in Alabama, Idaho, Massachusetts and Nebraska. Kansas does not include interest from state and local bonds. Idaho will tax national banks upon their net income at 1 per cent on the first $1,000 with an increase of 1 per cent on each $1,000 until the maximum of 6 per cent on all over $6,000 is reached. In California, in accordance with a constitutional amendment, bank shares, moneyed capital, etc. are to be subject to local taxation as well as state for the first time since 1910. The rate on national bank income was formerly 4 per cent. It is now to be determined by the ratio of personal property taxes of general corporations to the net income of such corporations but not to exceed 6 per cent.

PUBLIC UTILITIES

A fact-finding tribunal is established in Arkansas. All utilities are subject to its control. To finance the tribunal all utilities are taxed $2 for each $1,000 of gross earnings. Connecticut and Ohio give a little relief to street railroads. Connecticut permits payment of railroad and street railroad taxes in two equal installments and Ohio exempts from property tax from 1933 to 1935 interurban railroads unless such railroads pay dividends or individual salaries in excess of $5,000. Oregon increased the fees on the gross income of all utilities. The range is now from $2.50 on gross from $2,500 to $10,000 to $4,000 on gross of $6,000,000 or over. California increased the rate on gross receipts of gas and electric companies by 1½ per cent making the total 9 per cent and telephone companies by ¼ of 1 per cent making the total 5¾ per cent. After Jan. 1, 1935 the property of utilities will be taxed for local purposes and the franchise and income for state purposes. Ohio continues for another year the emergency tax for poor relief. South Carolina adds 1 mill to the utility tax rate making the total tax 7 mills on gross income. Virginia increases the utility rate from 1/10 of 1 per cent to 1/5 of 1 per cent. North Dakota levies a gross earnings tax on power companies of 12 per cent and Oklahoma 4 per cent on freight line or equipment companies. In Oklahoma the sales tax applies to utilities. Texas will include in the assessed valuation of railroad, ferry, bridge, turnpike and oil companies the value of the intangibles as well as the tangibles. An entirely new schedule of rates was enacted for West Virginia and a new Public Service Commission created in Indiana.

CHAIN STORES

Chain store taxes were levied in 7 states, Idaho, Maine, Maryland, Michigan, Minnesota, Montana and West Virginia. It is a flat rate depending on the number of stores in all these states except Minnesota where in addition to the flat rate there is a graduated tax based on gross sales. This is not imposed if 95 per cent of all the gross sales comes from fuel, lumber, building material, gas, oil and grains. The receipts go into the general fund in all the states except Idaho, Minnesota and West Virginia where they are for education. The existing chain store tax was repealed in Arizona, and in Michigan and West Virginia injunctions are pending. The rates were increased in Indiana, North Carolina and Wisconsin. The increase in Wisconsin is in the form of a temporary occupational tax based on gross income. Vermont's sales tax might be classed with the chain store taxes as it in applying only to sales over $50,000 will exempt nearly all others.

LUXURY TAXES

In the search for new sources of revenue, the luxuries and pleasures are bearing their full share of the burden and the states are not leaving the field entirely to the Federal government. Ohio has a tax of 10 per cent on the retail selling price of all cosmetics. All admissions over 41 cents bear a tax of 1 cent on each 10 cents with the exception of roof gardens and night clubs where it is 1½ cents. If admissions are included in refreshment cost, they are deemed to be 20 per cent of the amount. Green fees, riding academies, etc., are subject to a tax of 10 per cent and golf club memberships to one of 5 per cent.

Pari mutuels have been legalized in Ohio and for this concession Ohio levies a tax of 10 per cent on the first $1,000 bet, 15 per cent on the next $4,000 and 20 per cent on all money over $5,000. 9 other states have this year taxed racing. California, Michigan, New Hampshire, Oregon, Washington, South Dakota and Texas permit the pari mutuels. The percentage of tax on these pari mutuels varies from 2½ per cent in Oregon and Texas to 3½ per cent in New Hampshire, 5 per cent in Washington and 8 per cent in South Dakota. Delaware levies an admission tax of 20 cents per person and New Jersey 10 per cent of the total admissions. Michigan places a heavy license fee on the race tracks. Ohio, Oregon, Washington, South Dakota and Texas levy license fees in addition to the percentage tax. Maryland has had pari mutuels for many years but this year for the first time levies a 1 per cent tax; formerly there was the license fee and the admission tax which are still retained. Arizona levies a temporary privilege tax on luxuries. Malt, liquors, cigarettes and tobacco are taxed as luxuries. Ohio continues its temporary tax on cigarettes until December 31, 1935.

TAX LIMITATIONS

In efforts to reduce the state and local expenditures many states have set tax limits. In Arkansas and Texas constitutional amendments permitting limitations (in Texas it is $22.50 per capita) will be voted upon November, 1934. This year California, New Mexico, Ohio and Oklahoma adopted such constitutional amendments. In New Mexico the limit set is 20 mills for all purposes and in Oklahoma 15 mills. Both states may under certain conditions exceed this limit. In California the total amount of the state fund to be raised from general property is limited to 25 per cent; state appropriations for the next biennium cannot be more than 5 per cent greater than the last without a two-thirds vote of the Legislature, this includes debt charges. The financing of education is to be centralized in the state. Ohio requires for the levy of a tax in excess of the 15 mill limit for other than current expenses of schools the approval of 65 per cent instead of 55 per cent of the electors voting.

ADMINISTRATION

There have been some changes in administration. In Arkansas the Corporation Commission has been created to succeed the Railroad Commission, the Commission of Conservation and Inspection, and the Tax Commission; Colorado has reorganized and consolidated its state government. There is now a department of Finance and Taxation. Illinois formerly had five members on its Tax Commission, now it has three. Indiana has entirely reorganized its state government; there are now only 8 departments instead of 160. The State Board of Finance is abolished and its powers and duties are transferred to the Department of Treasury which, with the Department of Audit and Control, constitute the two finance departments of the state. Indiana provides for a County Board of Tax Adjustments in each county. This Board must approve of the local budgets and the tax rates. The people have the right to appeal from this Board to the state. Assessors are abolished in towns with less than 5,000 population. Colorado and Kansas require every governmental unit in the state to prepare a budget and submit the same to the State Tax Commission. Michigan gives a county commission supervision over local budgets. New Jersey places in the hands of the State Tax Commission the assessment of railroad and canal properties; they were formerly assessed by the State Board of Taxes and Assessment. County boards of equalization are abolished in West

Virginia. In Idaho, Montana, Kansas, Nebraska, Oklahoma and Iowa more extensive supervision over local assessment is granted to the state or county. New York has abolished the *ad valorem* tax on personal property.

INCOME TAXES

By Mabel Newcomer

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FEDERAL INCOME TAX

Increase in Taxable Income.—No change has been made in the rates and exemptions of the personal income tax during the year, but the National Industrial Recovery Act of June 16th increased the taxable income by abolishing the privilege of carrying losses over until the following tax year. Further inroads on individual incomes will be made by the five per cent corporation dividend tax, withheld at the source, which was incorporated in the same act.

Corporate Levies. — The rate on consolidated returns of corporations has been increased from 14½ to 14¾ per cent, the increased rate to apply to 1934 and 1935 income. An excess profits tax of 5 per cent of corporation income in excess of 12½ per cent of ''adjusted declared value of capital stock'' also adds to the tax burden on corporate income. This applies to income received after July 1, 1933. It is generally believed that more thorough-going revision of the income tax, with more highly progressive rates, will take place at the next session of Congress.

Present Tax Rates.—For the present the normal tax rates are 4 per cent on the first $4,000 of taxable income and 8 per cent on the excess of net income over $4,000. The surtaxes begin with one per cent on the excess of net income over $6,000 and rise to 55 per cent on net income in excess of $1,000,000. Personal exemptions are $1,000 for single persons, and $2,500 for heads of families, with a $400 credit for dependents. The exemption for estates and trusts is $1,000. The corporation income tax rate is 13¾ per cent with one per cent additional for consolidated returns.

Revenue from Federal Tax.—Revenues from personal and corporation income taxes combined for the fiscal year ending June 30, 1933 amounted to only 71 per cent of collections for the year preceding and were only 31 per cent of the amount collected three years earlier. Collections for the first quarter of the fiscal year 1933-34 are 6 per cent below collections for the same quarter of the year preceding, having dropped from $174,000,000 to $163,000,000. The government is now obtaining only two-fifths of its tax revenues from these taxes whereas it was obtaining two-thirds of its tax revenues from this source before the depression.

REVENUE FROM FEDERAL INCOME TAX

(in thousands of dollars)

Fiscal Year	Corporation Tax	Personal Tax	Total Tax	Per Cent of All Federal Taxes from Income Tax
1932–33...............	$394,218	$352,574	$ 746,791	40.3
1931–32...............	629,604	427,275	1,056,879	56.1

STATE INCOME TAXES

Personal Levies.—The struggle to balance state budgets has led to the adoption of personal income taxes in six states and corporation taxes based on net income in four. All of the new personal taxes have progressive rates and apply both to earned and unearned income. Six states which had introduced personal income taxes earlier (Idaho, North Carolina, North Dakota, Oklahoma, Oregon and South Carolina), have raised the rates of the tax. Five of these states lowered exemptions at the same time, but Oklahoma increased personal exemptions and reduced the rate on small incomes while raising the rate on large incomes. New York continued the rates of the previous year but lowered personal exemptions. Two of the new corporation taxes have progressive rates. Three states which had corporation taxes based on net income prior to 1933 (Montana, North Carolina and Oklahoma), have increased the rates of these taxes.

Property tax offsets in the California tax have been abolished for business corporations, and the rate lowered. Provision for such offsets has been introduced in the new corporation tax in New Mexico and added to the Oregon corporation tax, which latter tax has been extended to all corporation income. The Washington income tax has been declared invalid by the state superior court as violating the constitutional provision for uniform taxation. Gross income taxes have been adopted in a number of states, in some instances in addition to a net income tax.

Use of Tax Proceeds.—The new taxes in Minnesota and New Mexico go to education, and that in Montana goes in part to education. For the rest the proceeds go to the state general funds, although usually with the

DIGEST OF STATE PERSONAL INCOME TAX PROVISIONS

State	Year First Effective	Personal Exemptions			Rates of Tax (Per Cent)	Amount of Taxable Income in Excess of Which Maximum Rate Applies
		Single	Head of Family	Dependents		
Ala.	1933	$1,500	$3,000	$300	1 – 5	$ 8,000
Ariz.	1933	800 (a)	1,750 (a)	400 (a)	1 – 5½	11,000
Ark.	1929	1,500	2,500	400	1 – 5	25,000
Del.	1917	1,000	2,000	200	1 – 3	10,000
Ga.	1929	1,500	3,500	400	1 – 5	20,000
Ida.	1931	700	1,500	200	1 – 6	5,000
Kan.	1933	750	1,500	200	1 – 4	7,000
Mass.	1916	2,000 (b)	2,500 (b)	250 (b)	1½–6 (c)	—
Minn.	1933	1,200	2,000	250	1 – 5	10,000
Miss.	1912	750	1,500	200	2½–6	15,000
Mo.	1917	1,000	2,000	200	1 – 4	9,000
Mont.	1933	1,000	2,000	300	1 – 4	6,000
N. C.	1921	1,000	2,000	200	3 – 6	6,000
N. D.	1919	500	1,500	200	1 –15	15,000
N. H.	1923	200	200	—	(d)	—
N. M.	1933	1,000	1,500	200	1 – 4	100,000
N. Y.	1919	1,000	2,500	400	2 – 6	50,000
Ohio	1931	—	—	—	5 (e)	—
Okla.	1908	1,000	2,000	1,000	1 –10 (o)	100,000
Ore.	1930	800	1,500	300	2 – 7 (f)	7,000
S. C.	1922	1,000	1,800	200	2 – 5	6,000 (g)
Tenn.	1929	(h)	(h)	—	5 (i)	(i)
Utah	1931	1,000	2,000	400	1 – 4 (j)	8,000
Vt.	1931	1,000	2,000	250 (k)	2 – 4 (l)	—
Va.	1843	1,250	2,800	400	1½–3	5,000
Wash.	1932	800 (a)	1,750 (a)	400 (a)	1 – 7 (m)	12,000
Wis.	1911	800 (a)	1,750 (a)	400 (a)	1 – 7 (n)	12,000

(a) Exemptions actually deductions from tax of $8, $17.50 and $4 respectively. (b) Exemptions apply to earned income. There is a flat exemption of $300 for unearned income. (d) (c) Earned income and annuities 1½%; capital gains 3%; interest and dividends 6%. Average rate on real estate (in 1933 2.74%); applies only to income from interest and dividends. (e) Applies only to income from intangibles. (f) Exemptions and rates do not apply to income from intangibles; this is taxed at 8% with a $500 exemption for a single person and $800 for ~~heads of~~ families. (g) For income from interest and dividends 5% on all over $100. (h) Income from $100 worth of stocks and bonds. (i) Applies only to income from dividends and interest. (j) Property tax offset is applied to the extent of one-third of tax. (k) In case all income is from intangibles exemption is $400 for a single person and $800 for a head of a family. (l) 2% on all income except that from intangibles; 4% on income from intangibles. (m) Certain property tax offsets may be deducted. (n) Including surtax for teachers' pensions rates are 2 1–16 to 13%. (o) Surtax of ½ to 5% in addition between $10,000 and $100,000.

provision that the receipts are to be used for the reduction of the property tax.

The present status of state income taxes is as follows: 24 states are taxing personal and corporation income. Three states are taxing personal income but not corporation income. In two of these the tax applies only to unearned income. Two states are taxing corporation income but not personal income. All of these states excepting Delaware, Massachusetts, New Hampshire, Tennessee, Utah and Vermont, tax such income of non-residents as they can reach. New Mexico, New York, North Carolina and South Carolina, however, credit non-residents with the amount of any income tax paid in the state of residence if such state allows similar credits. All of these states but Wisconsin tax residents on income derived from sources outside of the state, with only Georgia, Missouri, New Mexico, North Carolina and South Carolina allowing credits for income taxes paid in other states.

DIGEST OF STATE CORPORATION INCOME TAX PROVISIONS

State	Year When First Effective	Kind of Corporations Exempt	Amount of Income Exempt	Rate of Tax (Per Cent)	Exemption of Dividends of Other Corporations Paying Income Tax to State	Exemption of interest from Government Bonds
Ala.	1933	——	$1,000	3	x	x
Ariz.	1933	Insurance	—	2–6 (a)	x	x
Ark.	1929	Foreign insurance	1,500	2	x	x
Calif.	1929	Public utilities; insurance	—	2 (b)	x	–
Conn.	1915	Public utilities; insurance; banks	3,000	2	–	–
Ga.	1930	Insurance; banks	—	4	–	x
Ida.	1931	National banks	—	1–4 (c)	x	x
Kan.	1933	——	—	2	x	–
Mass.	1919	Public utilities; insurance	—	2½ (d)	x	–
Minn.	1933	Banks; mines; insurance	1,000	1–5 (e)	x	x
Miss.	1914	Banks	750	2½–6 (ff)	x	x
Mo.	1917	Express; insurance; banks	—	2	–	x
Mont.	1917	Express; national banks	2,500	2	–	–
N. C.	1921	——	—	6	x	x
N. D.	1919	Insurance; national banks	—	3	x	x
N. M.	1933	Express; insurance; banks	1,000	2 (f)	x	x
N. Y.	1917	Public utilities; insurance; real estate	—	4½	–	–
Okla.	1931	Insurance	—	1–10 (g)	–	x
Ore.	1930	Insurance	—	8	–	–
S. C.	1922	——	—	4½	–	x
Tenn.	1931	——	—	3 (h)	–	–
Utah	1931	——	—	3 (i)	–	x
Vt.	1931	Public utilities; insurance; banks	—	2	–	x
Va.	1927	Public utilities; insurance; banks	—	3	x	x
Wash.	1932	——	—	1–7 (j)	x	x
Wis.	1911	Railroad; car; insurance; savings bank	—	2–6 (k)	–	x

(a) Maximum rate applies to all income over $7,000. (b) Bank rate to be determined by average rate of income plus personal property taxes on business corporations; not to exceed 6%. (c) Maximum rate applies to all income over $5,000. (d) Bank rate to be determined by Commissioner; not to exceed highest rate applied to business corporations. (e) Maximum rate applies to all income over $10,000. (f) Offset up to one-fifth of *ad valorem* taxes. (ff) Maximum rate applies to all income over $15,000. (g) Maximum rate applies to all income over $100,000. (h) Five per cent on income from stocks and bonds. (i) Or, 1–20% of value of tangible property, whichever is greater, less property tax offset up to one-third of tax. (j) Maximum rate applies to all income over $12,000. (k) Maximum rate applies to all income in excess of $6,000.

Revenue from State Income Taxes.—Much of the revenue from state income taxes is earmarked for specific functions. School funds receive practically all of the proceeds in Delaware, Minnesota and New Mexico, three-fourths in Oklahoma and Utah, one-half of the personal income tax and one-fourth of the corporation income tax in Montana, $750,000 in Arkansas and $300,000 in Vermont, and unspecified sums in South Carolina and Washington. In Arkansas $500,000 is set aside for charities; in Vermont $150,000 for local roads. Part of the yield is distributed to local governments for general local use. In Massachusetts the state retains the temporary additional tax on personal income and enough of the regular tax to cover the cost of administration. The remainder is distributed to the local districts. The corporation tax is distributed, five-sixths to the cities and towns and one-sixth to the state. In New Hampshire the proceeds over the cost of administration are turned over to the towns and cities. In New York half of the regular personal income tax, one-third of the corporation income tax and all of the bank income tax are distributed to local districts. In Tennessee 45 per cent of the corporation income tax on intangibles is distributed to local districts. In Wisconsin the surtax is used for special state expenditures, and also the temporary increase in the normal rates. Sixty per cent of the regular normal tax is distributed to local divisions. The remainder of the proceeds in the different states is paid into the general state fund although the law occasionally specifies that the yield is to be used for the reduction of property taxes or debt.

REVENUE FROM STATE INCOME TAXES

(in thousands of dollars)

State	Amount from Personal Income	Amount from Corporation Income	Amount for State Purposes	Amount for Local Purposes	Fiscal Year Ending
Ark.	$ 87	$ 100	$ 187	—	Dec. 31, 1931
Calif.	—	3,394	3,394	—	June 30, 1933
Del.	654	—	654	—	June 30, 1933
Conn.	—	850	850	—	June 30, 1933
Ga.	690 (a)	692 (a)	1,382	—	Dec. 31, 1931
Ida.	37	53	90	—	Sept. 30, 1933
Mass.	18,000 (b)	4,000 (b)	356	21,644	Nov. 30, 1932
Miss.	165	161	326	—	Sept. 30, 1933
Mo.	2,435	856	3,291	—	Dec. 31, 1932
Mont.	—	77	77	—	June 30, 1933
N. C.	997	4,967	5,964	—	June 30, 1933
N. D.	51	65	116	—	June 30, 1933
N. H.	574	—	510	564	Dec. 31, 1932
N. Y.	30,430	33,251	44,702	18,979	June 30, 1933
Ohio	(c)	—	(c)	—	....
Okla.	654	283	937	—	June 30, 1932
Ore.	1,772	521	2,293	—	Dec. 31, 1932
S. C.	230	952	1,182	—	Dec. 31, 1932
Tenn.	636	496	846	286	June 30, 1932
Utah	248	—	248	—	June 30, 1932
Vt.	553	78	491	140	June 30, 1933
Va.	938	1,170	2,108	—	June 30, 1933
Wis.	8,467 (a)	10,400	11,462	7,405	June 30, 1933

(a) Division between corporation and personal income tax yields estimated.
(b) Estimated.
(c) No figures available.

VII. PUBLIC FINANCE AND TAXATION

LAND AND PROPERTY TAXES

BY JENS P. JENSEN

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RELIEF PROVISIONS

Moratoria.—State legislators, convening at least once in every state, in regular session in all but four, carried unmistakable mandates for tax relief. Continuing or increasing tax delinquency in all parts of the country gave to the 1933 tax legislation an emergency character. Tax moratoria were enacted in California, Florida, Iowa, Kansas, Minnesota, Missouri, New York, Oklahoma, South Carolina, South Dakota, Tennessee, Washington, and Wisconsin, either in the form of a deferred due date or extensions in the discretion of the localities. Some of these, however, were mere adjustments made necessary by the bank holidays.

Penalties and Interest.—Interest or penalties or both on delinquent taxes have been waived or reduced in Arkansas, California, Colorado, Florida, Idaho, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Dakota, Tennessee, Texas (continued from 1932), Utah, Washington, Wisconsin, and Wyoming. Usually contingent upon payment prior to a stated date and temporary in effect, some of them involve a permanent change in the interest and penalty schedules. Such a law has been upheld in Missouri (61 S. W. 2, 750), but, as remission of a "liability to the state," one has been held unconstitutional in Montana (20 Pac. 2, 1057).

Instalment Payment.—Property taxes, current or future or both, not yet delinquent, may be paid, by action of 1933, in two or more instalments in Arizona, Delaware, Florida, Iowa, Massachusetts, Mississippi, Nebraska, Nevada, New York (Westchester County only), Oklahoma, Oregon, Vermont, West Virginia, and Wisconsin. In Oregon (18 Pac. 2, 229) state, municipal, school and road taxes may be paid separately. An Arkansas 1932 statute permitting payment in three instalments has been held impossible of performance by the attorney general. Instalment payment of delinquent taxes, as a species of relief and as a means of stimulating payment and redemption, was provided for in Arizona, Florida, Idaho, Indiana, Minnesota, New Jersey, North Carolina, North Dakota, Ohio, Oregon, South Dakota, Texas, and Washington. South Carolina provided for such payments by special acts affecting most of the counties.

Discounts and Prepayments.—Discounts for prompt payment were permitted in Kansas, North Carolina, Oregon, Utah, being already in effect in Vermont, where a 1933 law permits the localities to reduce the statutory 4% discount. Maine towns were permitted to accept prepayment, allowing not to exceed 8% interest. Idaho provided for the issue of tax anticipation certificates without interest.

Tax Sale Postponement.—In Arkansas, Idaho, Iowa, Kansas, Maryland, Michigan, Minnesota, Pennsylvania, South Dakota, Washington, and Wyoming, sales of delinquent property were stayed either by statutory provision or by petition to the courts. The Michigan act was upheld (247 N. W. 360) and the Washington law construed (22 Pac. 2, 663). A number of states provided for payment of taxes by mortgagees and other interest holders.

Alternative Tax Lien Enforcement.—Experiments with alternative lien enforcements were approved. Maine tax collectors may, upon proper notice and after eight months, file a mortgage lien for record which may later be foreclosed. A North Carolina simplifying act was emasculated by subsequent acts. The Florida supreme court upheld (149 So. 746) a comprehensive 1933 act which attempts, over a period of years, to clear the records of an accumulation of delinquent taxes in order to facilitate the collection of current taxes.

Redemption Proceedings.—Legislation favoring the redemptioner of property sold for taxes was enacted in Alabama, Idaho, Kansas, Maine, Minnesota, Montana, North Dakota, South Dakota and Wyoming, either by extending the time or reducing the penalties and interest upon redemption or both. A 1932 act extending the period was held invalid in West Virginia, as an impairment of contract as to sales made prior to the statute (169 S. E. 790). More litigation of this type may be expected as may also cases testing the parity of liens of the different levies of the several local governmental units.

Tax Titles.—It is said that he who purchases a tax deed purchases a law suit, the courts construing all rights under a tax title strictly against the purchaser. Montana provided that tax titles heretofore issued should be valid, notwithstanding any error in the form, substance and amounts stated in the application for the tax deed. Such legislation has in former years often been held invalid, the courts not sharing the concern of the legislature over the resulting impairment of the market for tax certificates. The court reports of 1933 alone show scores of cases involving contested tax titles.

Collection Procedure. — In South Dakota it is no longer required that payment of property taxes on motor vehicles must precede registration; in Wyoming such concession is contingent upon an affidavit that the car will not be used for a year. In contrast, in California property tax payment must precede issuance of the tag. Nebraska required delinquencies to be settled in the order of their occurrence and required the deduction of taxes from certain claims of public employees. In Nevada, taxes on transient livestock may be collected any time. North Dakota and New Mexico placed certain restrictions on the removal of non-tax-paid personalty. Connecticut, Illinois, and New Jersey required a part of the taxes to be paid as a condition for hearing on review or appeal. Perhaps the most radical collection measure is the so-called "Skarda Act" of Illinois under which, upon petition by county collectors, the courts may appoint receivers for non-tax-paid property and use the income therefrom in satisfaction of taxes. Similar measures, less drastic in nature, already existed in Massachusetts, New Jersey, and North Carolina. In one state only, Massachusetts, was there any legislation to improve the personnel of the tax collectors although the court reports, with other evidence, indicate that such improvement is needed.

Medium of Payment.—A number of concessions were made as to the medium of payment, some of them merely emergency arrangements caused by the bank holidays. North Dakota and Oregon authorized counties to accept their warrants in payment, and in North Carolina they may accept, as credits on hospital property taxes, bills for services rendered to indigent poor. The Florida statute extending the redemption period also permits payment in public warrants or bonds. But in Arizona tax anticipation warrants were held not receivable (16 Pac. 2, 967).

Rebates and Compromises.—North Dakota provided for partial cancellation; Idaho, Nevada, New Jersey, Montana, Utah and Washington for compromises made locally in case of litigation, and South Dakota permitted a rebate for taxes on livestock lost through disease. Except in Florida and North Carolina, no steps were taken toward clearing the tax rolls of accumulated delinquencies.

Reduction of Levies. — Arizona, California, Idaho, Iowa, Montana, Nevada, South Dakota, Utah, Vermont, Washington and Wyoming reduced or abolished their mandatory levies for roads and some other purposes. The North Carolina 15-mill state levy for schools and the South Carolina 4-mill levy under the 6-0-1 educational law were abolished. New York abolished all taxes on personal property.

Tax Limitation. — Arkansas will vote on a constitutional amendment to prohibit increases in taxes and New Mexico on a constitutional limit of 20 mills. By amendment Oklahoma limited the rate to 27 mills. Kansas, having rejected a constitutional limit in 1932, adopted statutory limits for each class of local units, and Washington a 40-mill limit on a 50% assessment. Michigan arranged for allocation of the 15-mill constitutional maximum of 1932 which was upheld (247 N. W. 474) and construed (247 N. W. 923). Two cases (184 N. E. 609; 246 N. W. 119) construe strictly the statutory limits in Illinois and Minnesota. West Virginia adopted an enabling act for the 1932 classification-limitation amendment. The Indiana 15-mill limit was reduced to 10 mills outside of incorporated municipalities.

EXEMPTIONS

There was no net reduction of exemptions, most of the restrictions being made by the courts. North Dakota required the assessment of exempt property. In California, Massachusetts, North Carolina, and Vermont adjustments were made in charitable exemptions. A California constitutional amendment exempted non-profit private schools and Minnesota will vote on a limitation of such exemptions. In two cases (18 Pac. 2, 573; 20 Pac. 2, 267), in Kansas and New Mexico, exemption of college fraternity property was held invalid.

A proposed Minnesota amendment would make lands held by the Rural Credit Bureau taxable or require the state to reimburse the localities. Connecticut exempted land leased to the state and provided a state grant to the localities for taxes lost. A Virginia municipal water plant was held taxable (166 S. E. 570) if its operations are a source of revenue. Wyoming repealed the provision under which the state has reimbursed the localities for taxes lost through veterans' exemptions. Such exemptions were increased in Connecticut and Delaware. The exemption enjoyed by veterans on compensation and other moneys "payable" from the United States does not follow the property when converted (167 S. E. 127; 168 S. E. 465; 47 S. W. 2, 455; 166 Atl. 853). Oil removed from Indian lands, stored in owner's tanks, is taxable when the Indian has no further interest in it (288 U. S. 325).

Minnesota would exempt, by constitutional amendment, household goods and machinery; North Dakota exempted $100, and West Virginia $200 of household goods. Washington exempted farm crops held over, not including nursery stock (23 Pac. 2, 405). Wyoming discontinued exemption of sugar factories. A Florida statute exempting toll bridges is not invalid (148 So. 769). Special exemption of a financially crippled but peculiarly important railroad is not unconstitutional in Maryland or under the Fourteenth Amendment (289 U. S. 36). An interest-Connecticut case (164 Atl. 643) upholds contractual exemption of bank stock dating back to 1825. A proposed new constitution of North Carolina would authorize exemption of homesteads.

CLASSIFICATION

Minnesota created two additional classes: Class 3b, rural homesteads, assessable at 20%; class 3c, platted homesteads, at 25%; and coal bridges, used for handling coal on docks, are machinery belonging in class 3, not class 4 (246 N. W. 538). The Ohio classification was upheld and construed (185 N. E. 212; 184 N. E. 530; 186 N. E. 370). Ohio may tax (186 N. E. 392) the equitable interest of a resident life beneficiary under irrevocable trust covering property outside of Ohio under control of a nonresident. Indiana and Nebraska repealed their taxes on intangibles and adopted new ones. A new tax on intangibles in Arizona, now in litigation, has seven classes with rates from 1 to 12 mills. An Arkansas tax of 1% on warrants paid by county treasurers, for old age pensions, violates the uniformity rule (60 S. W. 2, 1027). Alabama, North Carolina, Ohio, and West Virginia modified their taxes on intangibles.

TAX COMMISSIONS

Investigation.—The New York temporary tax-revision commission was continued. A Connecticut seven-member commission is to report in 1935 and so is a similar commission in Maine. A Wyoming commission was to report to a special session in 1933.

Administrative.—The Arkansas Tax Commission was abolished and its duties transferred to the Corporation

Commission. The duties of the North Carolina Tax Commission were similarly transferred to the Commissioner of Revenue, an arrangement that will be altered if the new constitution is adopted. The North Dakota Regulatory Department will supervise the assessment. The powers of the New Jersey Board of Tax Appeal in the assessment and review of railroad and canal property were extended. In Nevada, county assessors are no longer members of the Board of Equalization. An Oklahoma case (20 Pac. 2, 1041) sustained the power of the Board of Equalization to equalize oil pipe lines as ''public service corporations.'' The Nebraska Board of Equalization now equalizes personal as well as real property. The Illinois Tax Commission has been reduced to three members. In many of the states the salaries of the commissioners were temporarily or permanently reduced.

LOCAL ASSESSMENT

Indiana township assessors in towns of less than 5,000 population were abolished. New Mexico abolished county boards of appraisers. The assessment was more specifically defined in Maryland, Oregon, West Virginia and Wyoming. In Nebraska the assessments are to be biennial and in Iowa, triennial, after 1934. In Iowa the fractional assessment was abandoned for one at full value. Montana requires the assessment of motor vehicles at the time of registration. Numerous court decisions are reported for 1933, involving alleged improper assessment. One opinion (54 S. W. 2, 377) characterizes the action as an ''annual appeal'' to prevent confiscation.

EQUALIZATION AND REVIEW

West Virginia abolished the county board of review in favor of the county court. In New Mexico, the county board was strengthened and appeal to the Tax Commission provided for. In Idaho and Montana, similar changes were made. The Cook County (Illinois) Board of Appeals may make only individual, not blanket changes in the valuation, as ordered by 1933 statute, it being now in litigation whether the Board formerly might make blanket changes. In an earlier case (185 N. E. 248) this Board was ordered to afford a hearing although the books had been already made up, and the taxes were in the process of collection.

INCREASE IN TAX LITIGATION

Litigation was conspicuously on the increase in matters referred to above as well as on alleged improper review and equalization and the collection of back taxes. From the large number of cases reported, it appears that the hard times are causing the taxpayers to contest the validity of the levies, apparently using every remedy available. It is unfortunate that the signs point definitely toward still more of such litigation.

CORPORATION AND BANK TAXES

By Jens P. Jensen

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CORPORATION TAXATION

Federal Emergency Taxes. — The National Industrial Recovery Act provided for taxes applicable chiefly or solely to corporations: A 5% tax on dividends, collectible at the source; extension of the 50% corporate surplus tax; a capital stock tax of $1 per $1,000 of adjusted declared capital; an excess profits tax on income in excess of 12½% of the value of adjusted declared capital. The manufacturers' excise tax and the taxes on telephone and other utility facilities, extended to 1935, will be paid chiefly by corporations.

State Income Taxes. — Several states adopted corporate income taxes and others increased the rates of existing taxes. The rates are progressive, from 2% to 6% in Arizona, from 1% to 5% in Minnesota; so also, from 1% to 7%, the 1932 tax of Washington, which has been held unconstitutional (25 Pac. 2, 81). In Kansas and New Mexico the flat rate is 2%. The voters of Alabama adopted an amendment authorizing a flat 3% tax. In California the rate was reduced to 2%, except on banks; property tax offsets were abolished, and Massachusetts business trusts were placed on a parity with other corporations. Montana raised the rate of the corporation license tax from 1% to 2% of net earnings, and the Supreme Court upheld the tax (25 Pac. 2, 114). North Carolina raised the rate from 5½% to the constitutional limit of 6%.

Franchise Taxes.—For the purpose of determining the initial fee California has assigned a value of $10 per share of no par stock. The North Carolina tax was increased from $1.25 to $1.50 per $1,000 of capital. The Alabama franchise tax has been construed (148 So. 329) to permit the disregarding of the charter designation of a principal office which is in fact fictitious. Deposits of a foreign corporation in Alabama banks, in transit to the home office in another state, is not capital employed in Alabama (149 So. 83). The Alabama statute providing that a foreign corporation merged with a domestic corporation shall be deemed a foreign corporation if more than 75% of the consolidated company's capital is outside of the state, is not unconstitutional (144 So. 811). A foreign corporation engaged solely in landing, storing, and selling the original package goods, imported from abroad, is not liable to an Alabama franchise tax on the doing of such business (288 U. S. 218, reversing 142 So. 87). In Pennsylvania, a brewing company dealcoholizing its product to the prescribed Federal alcohol content is not for that reason engaged in manufacturing so as to be exempt from the state capital stock tax, from which manufacturers, except brewers and distillers, are exempt (163 Atl. 175).

In California a constitutional amendment was adopted abandoning the gross receipts taxes on utilities; but by statute the rates were raised on electric, telephone and telegraph utilities. Montana enacted a tax on telephone companies; but a 5% gross receipts tax on a fruit growers express company, in lieu of or being a special form of *ad valorem* taxation, was held improper (22 Pac. 2, 171), the measure of the tax bearing no relation to the value of the cars furnished. North Carolina increased the taxes on electric, power, street railway, gas, water, and telephone utilities from 5% to 6%; telegraph companies from $6 to $7 per mile, and the railroad franchise tax from 75c to 90c per $100 of valuation. The North Dakota gross income tax on certain utilities was increased from 6% to 12%. South Carolina added an extra mill on the capital stock of corporations. Oklahoma imposed a gross receipts tax of 4% on freight cars, and Washington substituted an *ad valorem* tax for a gross receipts tax on car companies. Additional levies were imposed upon insurance companies in Idaho, Montana, Nevada, and Oregon. A Minnesota case (247 N. W. 695) approves of the ''principle use'' of telephone property as determining its liability to the gross receipts tax; and a California case (18 Pac. 2, 768) does the same where the use is ''dual,'' which, however, will be unimportant if the gross receipts tax is abandoned. The South Carolina tax on hydro-electric power is upheld again (288 U. S. 178), plaintiff being not exempt by reason of being a licensee of the Federal Power Commission. This same tax in Idaho is not applicable to municipal corporations (23 Pac. 2, 245). The 1931 gross receipts tax in Florida on utility companies was upheld (148 So. 188).

BANK TAXATION

Corporate Income Taxes.—The Federal emergency taxes on corporations apply to banks. The new corporate income taxes of Arizona, Kansas, and Minnesota are not applicable to banks, but those of New Mexico and Washington are, the latter being held invalid. Idaho and Oklahoma expressly adopted the fourth method authorized in Section 5219 for taxing banks.

California banks will continue to pay not to exceed 6%; they do not share in the reduction of the rate on other corporations to 2%. In Alabama the new constitutional amendment, providing a 3% corporate income tax, applies to banks in lieu of the former franchise tax of 5% applying to state banks and financial institutions. In Indiana, in lieu of the *ad valorem* tax on the shares of banks, there is payable 25c per $100 of capital, surplus, and deposits (with certain exceptions). In Massachusetts the definition of corporate taxable income was broadened, 6% being made the maximum for banks.

Other Taxes.—Congress failed to amend Section 5219, although H. R. 13855 was reported to the Banking and Currency Committee of the House, which would have simplified the rule under which the so-called classified property tax states may impose a direct tax on the shares of national banks. Shreveport national banks were unsuccessful in avoiding a tax on their shares because Morris plan banks and other non-deposit institutions were not liable to such a tax (289 U. S. 69, affirming 143 So. 23). In Alabama, under law prior to 1932, state banks could not avoid the tax on their shares because the law did not then require such tax of building and loan associations and other non-deposit institutions, or because national banks could not under Section 5219 be required to pay it (288 U. S. 181, affirming 142 So. 552). In another case (144 So. 104) the statute which exempted building and loan association shares from the franchise tax on the ground that the "withdrawable shares" were not capital stock, was held void. In Montana the classification of building and loan shares as being subject to the 7% valuation, and national bank shares subject to a 30% valuation, was upheld (19 Pac. 2, 892); and a state bank failed to upset the method of determining the value of its shares prescribed under law of 1929 (19 Pac. 2, 885). There were not a few other cases involving minor issues of bank taxation.

ESTATE AND INHERITANCE TAXES

By H. R. Enslow

New York State Department of Taxation and Finance

FEDERAL ESTATE TAX

Relief for Depreciated Estates.—Few significant developments occurred in the field of the Federal Estate Tax during the year 1933. It will be recalled that the rates and schedules of exemption of the Federal Estate Tax were revised in 1932 and also that the gift tax was reimposed. One of the questions in this field which has aroused considerable discussion has been the possibility of making some adjustment in the taxation of estates which have been materially reduced in value between the date of settlement and the date of death of the decedent. Although several proposals were put forward no action was taken. One of the most interesting and significant of these proposals was that presented by the Joint Committee on Internal Revenue Taxation. This report recognized the need for making some adjustment for depreciation in estates between the date of decedent's death, when the tax is imposed, and the date of distribution of the property. It pointed out that in many cases the imposition of the tax approached confiscation. The Committee outlined three types of relief as follows:*

1. The rate of tax to be determined by the value of the estate at the time of the decedent's death and to be applied to the net value of the estate at the time of distribution.

2. The tax should not in most cases exceed the amount which would be paid if the highest rate applicable to

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* A convenient summary of the Committee's report is presented in *The Tax Magazine* for April, 1933, page 144.

any portion of the net estate at death were applied to the entire net estate at its value as of the date of distribution.

3. The total tax payable to be limited to an amount not exceeding a given per cent, say 50 per cent, of the value of the net estate at distribution. This method would be disproportionately beneficial to the large estates.

Decisions and Rulings.—Several interesting decisions and ruling by the courts and by the Bureau of Internal Revenue are deserving of notice:

In Burnett *v.* Guggenheim it was ruled that a surrender of power of revocation should be regarded as a taxable transfer under the revenue act of 1924.

In Scott, exec. *v.* Becker it was held that a child's share, never available to the widow, was not properly included in the gross estate.

In First National Bank, adm. (Sir John Joseph Garvin Estate) *v.* Commissioner it was held that stock of domestic corporations and other intangible personal property physically present in the United States should be held taxable in an estate of a non-resident alien, and that, in order for transfers within two years of death to be held taxable as having been made in contemplation of death, the question of fact must be determined.

Guinn *v.* Commissioner determined that the interest of a decedent tenant in property held jointly is taxable notwithstanding the fact that the tenancy was created prior to 1916.

In Putnam, exec. *v.* Tenant it was determined that tenancy by entireties created prior to the passage of the Federal estate tax are taxable.

In Latty, exec. *v.* Commissioners it was decided that claims paid under a contract made between the decedent and his daughter are not allowable as deductions.

In Reynolds, *et al.* exec. *v.* Gnichgel it was held that a settlement agreement with the Bureau of Internal Revenue must be regarded as a bar to any suit for recovery of an estate tax already paid.

Brown, exec. *v.* Routzahn determined that the rejection of an interest in the estate of another is not a taxable transfer within the meaning of the statute.

In Burnet *v.* Brooks it was held that estates of non-residents of the United States or securities physically situated in this country are to be taxable.

In Robinson, exec. *v.* Commissioner it was decided that the interest of a Michigan decedent in an estate by entirety should be taxable and that the full value of a joint bank account should be included in a gross estate in the absence of proof of any contribution by the surviving tenant.

Second National Bank & Trust Co. exec. *v.* Commissioner denied an exemption for property previously taxed where the interval between the two deaths was more than five years even though the distribution to the second decedent occurred within five years prior to his death.

STATE INHERITANCE TAXES

Revision of Rates and Exemptions. — Eleven states revised their inheritance tax laws in 1933 either by increasing the rates or lowering the exemptions or both. The states which took such action were California, Colorado, Florida, Maine, Massachusetts, New York, North Carolina, North Dakota, Oregon, West Virginia and Wisconsin. The increased rates in New York will be in effect only until July 1, 1935. Oregon became the first state to bolster up the inheritance tax by the imposition of a gift tax. The Oregon legislation allows an exemption of $10,000 and provides for a graduated tax rising to 25 per cent on amounts in excess of $1,000,000. It does not apply to any transfer subject to the state inheritance tax. Wisconsin also adopted a gift tax, an emergency measure, the revenue from which is to go to unemployment relief. Nebraska diverted all inheritance taxes collected by the county treasurer from county road funds to a general fund of the county for relief purposes.

Reciprocity.—Maine provided for reciprocity in regard to the enforcement of domiciliary inheritance taxes in non-resident estates. Similar action was taken by Connecticut, Massachusetts, New Hampshire, Ohio and Pennsylvania. Illinois extended the scope of the reciprocity provision in her inheritance tax law to include foreign countries.

Eighty Per Cent Credit. — Oklahoma and Texas provided for additional estate taxes where necessary to absorb the 80 per cent credit allowed in the Federal estate tax as imposed by the Revenue Act of 1926. Delaware provided that its estate tax shall be equal to the difference between all inheritance taxes actually paid and the maximum credit allowed under the Federal estate tax, instead of the difference between all the inheritance taxes actually paid and an amount equal to 80 per cent of the Federal estate tax, as formerly provided. West Virginia enacted legislation which has been ruled to impose an additional, not supplemental, tax to equal the maximum amount of credit allowed under the Federal estate tax.

AUTOMOBILE TAXES

By Beulah Bailey

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REVENUE AND EXPENDITURE

In 1932 the total state revenue from registration fees and gasoline taxes was $837,320,749. Of this amount $324,273,510 was registration fees and $513,047,239 gasoline taxes. Since 1929 the gasoline tax revenue in the various states has exceeded the revenue from registration fees. The total tax on motor vehicles would be augmented by $238,701,000 if we included the $98,700,848 Federal excise tax from June 21 to Dec. 31, 1932 and the estimated personal property and municipal taxes of $140,000,000. In 1932, $47,941,483 of the gasoline tax was spent for other than highway purposes and $35,506,810 of the registration fees, making a total of $83,500,000 diverted from highway purposes in 1932. Legislation in 1933 provides for still further diversions. Arizona, Ohio, Oklahoma and Washington may use part of the revenue for unemployment relief. Ohio also allocates the revenue from a 1 cent tax to schools, and in New Mexico the revenue from the 4-cent tax on lubricating oil is for the free text book fund. Arkansas, Indiana, North Dakota and South Dakota and Utah may use part of the gas ~~tax~~ revenue for road debt service. The registration fee money has been diverted for highway patrol in California, Illinois, Indiana, Maine, Michigan, North Carolina, Oregon, Pennsylvania, South Carolina, Tennessee and Washington; for the general fund in Colorado, Florida, Georgia, Iowa, Minnesota, New Mexico and New York; city streets in Maryland; old age pensions in Colorado; public safety department and motor vehicle liability insurance expenses in Massachusetts, and for unemployment relief, free bridge commission and traffic commission in New Jersey.

REGISTRATION FEES

The year 1933 has been a record year for decrease in the various states of the registration fees for pleasure cars and in many instances trucks and busses. In the previous years there has always been an upward curve for registration fees. In some states the decrease for trucks has been only for the light ones, in others it applies to all. The registration fees on pleasure cars have been reduced in Alabama, Arkansas, Delaware, Florida, Idaho, Kansas, Minnesota, Nebraska, Nevada, North Dakota, Oklahoma, South Dakota, Utah and Vermont. In North Dakota and South Dakota the reductions apply only to cars that are more than one year old. In Alabama the measure was changed from horse power to weight; in Florida from gross weight to net weight and in Wyoming from horse power and seating capacity to horse power and weight. Colorado adds $1.00 to the automobile registration fees. This additional revenue is to be paid into the old age pension fund. The rates of trucks have been reduced in Arkansas, Florida, Idaho, Kansas, Minnesota, Montana, Nebraska, New Jersey, New Mexico, New York, Oklahoma, South Dakota, Tennessee, Vermont and Wyoming. In Idaho, New Jersey and Minnesota the reduction applies to farm trucks only. In New York the 1932, 65 per cent increase on trucks, trailers and bus fees was repealed before it became effective. West Virginia reduces the rate on the lighter trucks but increases it on the heavier ones.

CARRIER RATES AND REGULATION

A few states have increased the regulations governing motor carriers. Arizona enacted an entirely new motor vehicle carrier act. The regulation of common carriers is placed with the Arizona corporation commission. The rate of tax remains the same as formerly, 2½ per cent on gross. California reduced the gross receipts tax on common carriers from 5 per cent to 3 per cent. In Idaho all omnibuses must be licensed by the Auto Transportation Company. Indiana levied a special fee of $1.00 per 100 pounds of gross weight on all motor carriers outside of cities except school buses, carriers of farm produce, private business and moving van. Maine placed an excise mileage tax on all motor vehicles excepting buses and requires a special license for property common carriers. Maryland enacted a new tax on property carriers based on weight and number of axles and on buses in interstate business at ⅛ of 1 cent per passenger seat multiplied by the number of miles of roads over which they operate. Formerly the fees for property carriers were the same as trucks privately owned. Michigan and North Dakota both levy a tax measured by weight on common carriers used in interstate business. New Mexico reduced the mileage tax on common carriers by 50 per cent and South Dakota reduced the fees for buses. Oklahoma uses weight and miles as the measure for the fees on common carriers not traveling over regular routes. The rate for carriers in Oregon will be 1 mill per ton mile and on private carriers ¾ mill per ton mile. The regulation of common carriers is under the jurisdiction of the Commissioner of Public Utilities. Washington enacts a mileage tax on common carriers ranging from 1/10 cent to 4 cents per mile depending upon the weight. Wisconsin places a flat rate on property carriers in addition to the mileage tax but reduces the mileage tax.

GAS TAXES

There has been no reduction in gasoline tax rates nor has there been an increase except in the case of the Federal Government. But with the advent of liquor the Federal gas tax is reduced from 1½ cents per gallon to 1 cent.

Distributors must be bonded and licensed in Delaware, Florida, Idaho, Kansas, New Mexico, Oregon, Utah and Washington. Bonds only are required in Montana and South Dakota. In California the individual pumps must be licensed. The fee is $1.00. A 1 per cent allowance is being made for shrinkage in Connecticut and Delaware; 2 per cent in New Mexico, and in Utah the former amount of 2 per cent is increased to 3 per cent.

The administration of the gas tax has been placed in the State Treasurer's Department in Colorado, Department of Agriculture and Inspection in Nebraska, State Comptroller in New Mexico, and Finance and Taxation in Tennessee. The inspection of oil has been provided for in Arkansas, 10 cents per barrel on 1/20 of 1 cent per gallon, and in Tennessee, ½ of 1 cent per gallon.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

New England State Tax Officials Association, Room 237, State House, Boston, Mass.

North American Gasoline Tax Conference, 844-46 Consolidated Bldg., Indianapolis, Ind.

Western States Taxpayers Association, Denver, Col.

DIVISION VIII

PUBLIC RESOURCES AND UTILITIES

FEDERAL SURVEYS AND MAPS

By J. H. Wheat

Secretary, Federal Board of Surveys and Maps

FEDERAL BOARD OF SURVEYS AND MAPS

Organization.—The Board of Surveys and Maps of the Federal Government was created by Executive order of Dec. 30, 1919, for the purpose of making recommendations to the several executive departments or to the President, in order to coördinate all map-making and surveying activities of the Government. Twenty-three Government services are represented on the Board. The Advisory Council to the Board is composed of representatives from 21 associations and societies of engineers, geographers, geologists, etc., interested in surveys and maps. The map information office of the Board was established in 1920 for the purpose of collecting, classifying, and furnishing to the public information concerning all map and survey data available in the several Government departments and from other sources. Meetings of the Board are held on the second Tuesday in each month except June, July, and August. At these meetings, all of which are open to the public matters of general mapping interest are discussed and reports of committees are presented and acted upon.

MAPPING AND SURVEYING SERVICES

The Geological Survey is the most productive of the mapping organizations, as it is engaged in making the basic topographic map of the entire area of the United States. It is also engaged in making a geologic map of the United States and Alaska, involving both topographic and geologic surveys. In conducting investigations relating to surface and underground waters, classifying the public lands, and supervising the engineering phases of mineral leasing, the resulting maps are incidental.

The Coast and Geodetic Survey is one of the oldest surveying bureaus of the Government. It is charged with the survey of the coast of the United States and its possessions and with the publication of navigational charts of those regions. It is also charged with the determination of geographic positions by astronomic observations and by triangulation and traverse, and with the determination of elevations by spirit leveling, in the interior of the United States and Alaska.

The General Land Office is the oldest surveying and mapping bureau of the Government. (*See* The American Year Book, 1929.) This Bureau makes rectangular surveys of the public lands, which are published in the form of township plats. The Bureau issues annually a wall map of the United States showing the extent of the public surveys, national parks, national monuments, national forests, Indian, military, bird, and game reservations, and other useful information. It also issues maps of the 29 public-land states, and of Alaska and Hawaii.

The Hydrographic Office is charged with topographic and hydrographic surveys in foreign waters and on the high seas, and in the preparation and printing of maps and charts required in navigation on those waters.

The Corps of Engineers makes special topographic maps of areas of military importance and has made topographic maps of a few quadrangles not surveyed by the Geological Survey, besides revising some of the older topographic maps of the Geological Survey.

The Forest Service publishes general geographic maps of national forests and topographic maps of portions of them.

The Bureau of Reclamation publishes topographic maps of many of the Federal irrigation projects.

The Office of Indian Affairs has mapped portions of the Indian reservations.

The Mississippi River Commission has published a series of maps showing the profile of the river and the topography along the shores, extending from the source to the mouth of the river.

The International (Canada) Boundary Commission has published a series of topographic maps extending approximately one mile on each side of the United States-Canada boundary line and along the east boundary of Alaska.

The Lake Survey publishes hydrographic charts of the Great Lakes for navigational uses.

The Topographic Branch of the Post Office Department compiles post route maps for all the States, Alaska, Hawaii, the Samoan Islands, Guam, Canal Zone (Panama), Puerto Rico, and the Virgin Islands. It also complies rural free delivery maps of many of the countries in each of the states.

The Bureau of Chemistry and Soils publishes maps which show the character of the soils in the areas covered. A single soil map will usually cover the area of a county.

The Bureau of Public Roads publishes maps of the United States showing the Federal-aid system of high ways and also maps of some of the states carrying more detailed information of the same character.

TRIANGULATION AND LEVELING

The plan for the standard topographic mapping of the United States calls for a complete network of triangulation based on the standard (North) American datum. The geographic position of Meade's Ranch, Nebraska, is the accepted datum for the North American Continent, as the United States, Canada, and Mexico have adopted it and have made their position adjustments to conform to it. The plan also calls for spirit-level elevations based on mean sea level. Horizontal and vertical control work of this character accomplished during the past year is given in the summary of the year's work.

AERIAL PHOTOGRAPHY

Aerial photographs are of two general types, those taken with single-lens aerial cameras and those taken with multiple-lens cameras. There are single-lens aerial cameras of various focal lengths as well as multiple-lens type cameras having different numbers of lenses and with different focal lengths. In general, multiple-lens aerial photographs cover larger areas with each assembled exposure than a single print or exposure with a single-lens camera at the same altitude. The cost per square mile of aerial photographs on any given scale is correspondingly less when taken with a multiple-lens camera than with a single-lens camera. There is also a decided advantage in the compilation of data from multiple-lens photographs over those taken with single-lens cameras because of the greater area covered and the relative ease of expanding the ground survey control by graphic methods.

The Geological Survey continued work of compiling topographic base maps from aerial photographs. Briefly, the procedure is as follows: Horizontal control surveys are executed by ground survey methods, either by transit and steel-tape traverse or by a combination of triangulation and plane-table surveys; aerial photographs are procured; the photographs are inspected in the field and details to be incorporated in the maps are identified and marked with colored pencils; the map is compiled in the office and is usually reproduced on the scale of 1:31,680, or 2 inches equals 1 mile, by lithographic processes in from two to four colors. The maps show culture, drainage, wooded areas, and civic subdivisional boundaries, each in its true relative and geographical position. These maps are very useful for many purposes and are also intended as bases on which the relief of the areas will later be shown by contour lines to complete the topographic mapping of the areas.

The Coast and Geodetic Survey continued the planning of air photographic projects and the reduction of photographs to the finished maps. Aerial photographs of the coast of Southern California and of several sections of the Atlantic were being compiled at the close of the year.

GEOLOGICAL SURVEY

The status of topographic surveys shows that the country as a whole is now 45.6 per cent mapped, the year's increment amounting to 0.4 per cent. There was a large increase in the area covered by topographic base maps without contours prepared from aerial photographs after field examinations and an increase in the area mapped by stereophotogrammetric methods. The resurveys in large part covered areas previously surveyed on a smaller scale. The total area mapped in continental United States (exclusive of Alaska) in the fiscal year covered 11,563 square miles of new surveys, 5,720 square miles of resurveys, and 2,908 square miles of revision. Horizontal and vertical control completed consisted of 4,775 miles of spirit levels and 3,622 miles of transit traverse. Triangulation stations totaled, 413.

MAPPING OF AGRICULTURAL LANDS

During the fiscal year ending June 30, 1933, 27,771 square miles of agricultural lands in 29 states were mapped by the Soil Survey. This brings the total land mapped and classified to date to more than 1,500,000 square miles. The completed soil surveys of this vast area (greater than the combined areas of Germany, France, and Great Britain) not only provide practical working maps and handbooks to assist farmers to make the best use of their soils, but also afford an inventory of national soil resources of great and immediate value in governmental policy.

COAST AND GEODETIC SURVEY

Hydrography, topography, and coastal triangulation accomplished by the Coast and Geodetic Survey during the past fiscal year totaled 76,656 square miles, 2,536 square miles, and 13,858 square miles, respectively. More geodetic work was done during the fiscal year 1933 than in any other year in the history of the Coast and Geodetic Survey. As a result of these geodetic activities, 3,625 miles of first-order triangulation, and 11,324 miles of first-order and 2,940 miles of second-order leveling were added to the control nets of the country. The publication of airway maps for the Aeronautics Branch, Department of Commerce, was carried on by the Airway Mapping Section of the Coast and Geodetic Survey. The work completed during the fiscal year brought the total of sectional airway maps published up to 18, with 16 additional ones in progress, some of which were near completion at the end of the year.

CADASTRAL SURVEYING PROJECTS

Cadastral surveying projects by the General Land Office were carried on in 21 states and the Territory of Alaska. During the fiscal year approximately 1,907,000 acres of agricultural lands were surveyed in the United States proper and Alaska, the larger volume being in the States of Arizona, California, Nevada, Idaho, and New Mexico. A total of 75,000 acres of non-agricultural and mineral lands were surveyed. In addition coöperative surveys were executed on the national forests, in connection with the boundaries of national parks and monuments, on leased coal and oil lands, and water power sites. Approximately

815,440 acres of lands were resurveyed in 14 states.

FOREST SERVICE

The Forest Service published for administrative uses 19 quarter-inch scale maps, 19 half-inch scale maps, and 4-inch scale maps of the individual national forests. There were also published two maps to accompany Executive orders, 23 small editions of miscellaneous maps, charts, tables, graphs, and illustrations, and three United States Geological Survey quadrangles showing in color tints the vegetative types. The Forest Service personnel completed surveys on mapping projects covering about 1,500 square miles. This mapping was done on scattered areas to the accuracy and scale required to meet special requirements of forest administration. Drainage maps covering approximately 3,000 square miles were completed by aerial methods.

HYDROGRAPHIC SURVEYS IN PANAMA

The hydrographic survey of the Gulf of Panama, begun in 1929 by the United States Navy surveying vessels, was completed. This important gulf in the Pacific approach to the Panama Canal embraces a water area of approximately 12,000 square nautical miles with a total coast line of approximately 600 nautical miles. A hydrographic survey of Chiriqui Lagoon on the north coast of Panama was also completed. The triangulation controlling this survey will be expanded both eastward and westward to form eventually a rigid triangulation system from the Panama Canal northwestward along the Caribbean coast of Central America.

STATE GEOLOGICAL SURVEYS

By George C. Branner

State Geologist, Arkansas

GENERAL

As an aid to the development and conservation of their varied mineral resources, 36 states maintained active geological surveys as part of their governmental structures during 1933. The expenditures of these surveys during the fiscal year 1933-1934 were approximately $701,828. This figure was increased by approximately $288,497 by the Federal Survey and by state, county, and local organizations and individuals coöperating with state surveys, making a total of $1,039,535, subject wholly or largely to state control, which was devoted to state mineral development and conservation. C.W.A. allotments have been made to several state surveys, and it is expected that funds from this source will exceed $100,000 within the fiscal year. Approximately 81 full-time geologists and 210 part-time geologists and otherwise technically trained men were engaged in carrying on 424 state survey projects. These included geologic, topographic, and soil surveys, stream gaging, and miscellaneous projects. One hundred and eighty technical reports and maps were either prepared for publication or published during the fiscal year. The following review recounts those projects undertaken in addition to the continuing projects of previous years.

BASIC GEOLOGY

Arkansas completed a relief map of the state showing the areal geology. California began a study of the structure of the Coast Ranges of California and of the Kaweah quadrangle, completed studies of the geology of the White Mountain, Ventura and Elizabeth quadrangles, and of the Salinas Valley region, and published papers on the formations of the Redding-Weaverville districts, on the lakes of California and on the tracing of buried river deposits by geomagnetic methods. Idaho carried on laboratory research on the petrography of Idaho intrusives and ores. Illinois, carried on studies of the subsurface formations of the Paleozoic group and the Pleistocene series, and of the constitution of the Wisconsin drift sheets.

Iowa began the publication of a state geologic map. Kansas completed studies of the geology of Wyandotte, Johnson, Miami, Riley and Geary counties and published a report on the geology of Ness and Hodgeman counties. Maryland prepared a report on the Carboniferous system covering the results of 20 years' investigations. Minnesota published a state geologic map and a bulletin on the geology of the Rove formation and associated intrusives. Mississippi completed the preparation of a report on the Midway and Wilcox (Tertiary) formations of the state. Missouri began a study of the Cretaceous stratigraphy of southeast Missouri. Montana carried on the geologic mapping of the state. Nebraska completed stratigraphic studies of the Pine Ridge region, and of Richardson, Nemaha, and Pawnee counties; completed a manuscript on the Cretaceous formations, and published reports on the Ostracoda of the Big Blue series, Nautiloid Cephalopoda of the Pennsylvania formations of the Mid-continent region, and papers on vertebrate Tertiary fauna, the Grenola formation, the Missouri Valley traverse of Iowa north of the Jones Point deformation, the Red Oak-Sennet-Lewis traverse of Iowa, and the Middle River traverse of Iowa.

New Mexico began a study of some of the Fusulinidae found in the state. Ohio began a study of the geology of a portion of Tuscarawas County. Pennsylvania completed a study of the glacial history of the Delaware valley of Pennsylvania, and of the geologic mapping of the Meyersdale quadrangle. South Dakota published a geologic map of the state. Texas published a report on the stratigraphy of the state, and issued a geologic map of Callahan County. Vermont completed studies of the geology in the vicinity of Athens, Brookline, and Westminster, metamorphism near Rutland, the middle Cambrian fauna near St. Albans, of the statewide stratigraphy, and the structure and petrology of the Green Mountains. Virginia began studies of the geology of Shenandoah National Park and of the Virginia State parks, and published a report on the caverns of Virginia and a geologic map of the Appalachian Valley of Virginia. Wyoming began studies of the geology of the southern portion of the Absaraka Mountains of Wyoming, and the Cambrian formations of the Wind River, the Owl Creek, and Big Horn mountains of Wyoming.

ECONOMIC GEOLOGY

Arizona published a mineral deposit map of the state. Arkansas began the assembly of mineral collections for distribution to schools, completed a directory of the mineral industries and revised a report on the mineral resources of the state. California began geologic studies of the Central Hill Channel, ancient river channels, mineral deposits of California completed studies of the geology and ground waters of the Kings River area, the geology and mineral deposits of the Laurel and Convict basins, and of northeastern Madera County, and completed a study of the state mineral production for 1932; began the preparation of a bibliography of the geology and mineral resources of California for 1931-1933, and published a bibliography of the geology and mineral resources of California to Dec. 31, 1930, and papers on the economic geology of portions of Del Norte and Siskiyou counties, the application of geology to civil engineering, and a map of California showing the placer mining areas.

Colorado began a coöperative study of Aspin and vicinity, and completed a study of Snowmass Mountain area. Idaho completed studies of the Elk City and Buffalo Hump quadrangles, and also completed a manuscript on the geology and mineral resources of the Dome district. Illinois completed an economic survey and statistical review of the Illinois mineral industry; reprinted a report on the typical rocks and minerals in Illinois, and revised a bibliography on the geology, mineral resources and mineral industries of Illinois. Michigan published a report on the state's mineral resources for 1931. Montana published a memoir on a geological reconnaissance of the Tobacco Root Mountains. New Jersey published a bulletin on the state's mineral production in 1932. Pennsylvania began a study of the geology and mineral resources of Lehigh and Northampton counties, revised a report on the geology and mineral resources of Fayette County, and published an introduction to a report on the undeveloped mineral resources of the state and a report on the scenery of the state. South Dakota published a report on the state's mineral production from 1905 to 1931. Virginia completed a study of the geology and mineral resources of the Eagle Rock quadrangle, and published a report on the mineral resources of Goochland County.

FUEL MINERALS

Oil and Gas.—Arkansas published a report on the discovery of rock salt in a deep well in Union County. Illinois prepared reports on the electric condenser process for demulsifying oil, the oil and gas possibilities of the Jersey-Green area, results obtained from repressuring in the southeastern Illinois oil fields, and the oil and gas possibilities of the Warsaw area in Hancock County. Iowa began the preparation of a report on deep wells drilled in Iowa from 1929 to 1932. Kansas began a study of oil field brine disposal and published a report on the development of the oil and gas resources of Kansas during 1928-1930. Kentucky published bulletins on the geology of the Big Sinking Oil and Gas Pool in Lee and Estill counties, a stratigraphic analysis of some sections penetrated by wells in central Kentucky, and typical oil structures in the Owensboro field. Michigan published a report on the state oil and gas fields. Pennsylvania completed a report on the oil and gas geology of western Pennsylvania. West Virginia began a study of the oil and gas geology of Tyler County and the publication of a report on the oil and gas geology of Wetzel County.

Coal.—Illinois began a study of coal carbonization and carried on studies of the composition and fusibility of the ash of Illinois coals and their proximate and ultimate analysis. South Dakota began a study of coal in the Stoneville area, and published a report on the slacking properties and the effective fuel values of South Dakota coal. West Virginia began a study of the coal of Kanawha County.

METALLIC MINERALS

Arkansas began a study of the placer rutile deposits of Hot Spring County and a geomagnetic survey of the cinnabar area in Pike, Howard, and Clark counties, and republished an information circular on cinnabar. Arizona began a study of the gold lode mining of the state, completed an investigation of the geology and ore deposits of the Patagonia district, and published reports on the geology and mineral deposits of southern Yuma County and on Arizona gold placers and placering. California completed studies of the gold resources of Kern County and the Mother Lode Gold Belt, and published papers on the gold deposits of the Redding and Weaverville quadrangles. Minnesota completed a study of the iron ores of the state. Montana began a study of the geology of the ore deposits of the Neihart region and completed the publication of memoirs on the geology of the gold deposits of the north Moccasin Mountains in Fergus County, and the gold deposits of Broadwater, Beaverhead, and Phillips counties. New Mexico completed studies and published reports on the ore deposits of Sierra County and the metal resources of New Mexico. South Dakota published reports on the geologic history of the Black

Hills placer gold deposits and on prospecting for placer gold in South Dakota. Virginia completed a coöperative study of the lead and zinc resources of southwestern Virginia.

NON-METALLIC MINERALS AND WATER RESOURCES

Alabama published a report on the ground waters of northern Alabama. Arkansas began a study of the ground water resources of the state. California completed studies of the clays of Orange and Riverside counties, the limestone deposits in the San Francisco region, the graphite deposits of Los Angeles County, and limestone weathering and plant association of the San Francisco region, and published a paper on the discovery of piedmontite in the Sierre Nevada Mountains. Illinois published information circulars on sand and gravel resources of the Buda quadrangle, test drilling of limestone near Morris, clay products industry in Illinois in 1932, agricultural limestone distribution in 1932, Anna "Kaolin" as a new decolorizing agent for edible oils, and published a report on the petrology of fuller's earth at Olmstead. Iowa began the preparation of a report on the road materials of southern Iowa. Kansas published a report on the ground water resources of the Shallow Water basin in Scott and Finney counties. Minnesota issued a bulletin on limestones and marls. Mississippi began investigations of deposits of clay, bentonite, and fuller's earth. Missouri began a study of the fuller's earth deposits of southeast Missouri.

Montana began a report of the clay deposits of the state, and issued a memoir on the ground water resources of the Judith basin. Nebraska issued reports on the ground water and lakes of Sand Hill Region of Nebraska, methods of ground water investigation in the middle portion of the Platte Valley, and the drinking water of irrigation area. New Mexico began a study of the lithium and mica-bearing pegmatites of Taos and Rio Arriba counties. North Dakota began studies of the ground water resources of the Wyndmere and Kindred quadrangles, and completed a study of the ground water resources of Cavalier quadrangle. Ohio published a bulletin on brines. Pennsylvania began a coöperative study of the ground water resources of the central Pennsylvanian counties and published reports on the limestones of the state, and the ground waters of southeastern Pennsylvania. Virginia completed a study of the marble prospects of Giles County, and published a report on the ground water resources of northern Virginia. Wyoming began a study of the alkali lake deposits of the state. Vermont completed a study of the state marble industry.

RECLAMATION AND IRRIGATION

By George O. Sanford

Chief, U. S. Bureau of Reclamation, Engineering Division

APPROPRIATIONS AND ADVANCEMENTS

The appropriation act of Feb. 17, 1933, for the fiscal year ending June 30, 1934, together with the unexpended balance from previous appropriations, power revenues and funds advanced by water users, made the sum of $5,432,991 available for Federal reclamation. This is only 5 per cent more than the appropriation of the preceding year which was the smallest amount appropriated in the history of the Bureau. In addition to this sum there was also included an appropriation of $8,000,000 for continuing construction work on the Boulder Canyon project, Arizona-Nevada, which is being built under the supervision of the Bureau of Reclamation. The money appropriated for the Bureau was to be used principally in continuing the construction of the Owyhee project, Oregon, the completion of the Cle Elum dam on the Yakima project, Washington, starting the construction of the Hyrum reservoir on the Salt Lake Basin project, Utah, and operating such projects as have not yet been turned over to the water users.

At the time the appropriation act was passed, an effort was being made to reduce expenditures in every possible way, and the prospect for continuing construction work on any extensive scale was not encouraging. Congress had granted a moratorium in the payment of construction charges coming due on all projects during the three years ending with 1933, which resulted in a reduction of about $3,000,000 each of these years in the receipts to be credited to the reclamation fund. In order to offset this difference and provide funds for continuing work on projects under construction, the act of May 12, 1933, authorized the Reconstruction Finance Corporation, upon request of the Secretary of the Interior, to advance funds in an amount not exceeding $5,000,000 for construction of projects or divisions of projects under construction or approved and authorized. Any funds so advanced were to be repaid within five years with interest at 4 per cent. It was not necessary to take advantage of this Act, and of the money appropriated by Congress only a small amount has been released by the budget for paying some contractual obligations. The National Industrial Recovery Act, approved June 15, 1933, authorized an expenditure of $3,300,000,000, and applications have been submitted by the Bureau of Reclamation to the Public Works Administration for funds to build projects that are deemed to be essential to the development of the arid West and the conservation of its water resources.

CONSTRUCTION PROJECTS

The projects that have been approved for construction and the estimated cost are shown below:

Arizona	Verde	$18,912,000
	Parker–Gila	100,000
Arizona–Nevada	Boulder Canyon	38,000,000
Arizona–California	All-American Canal	27,000,000
	Yuma	120,000
Colorado	Denver office	20,000
Idaho	Boise	100,000
	Upper Snake River	4,000,000
	Minidoka	400,000
Montana	Bitter Root	100,000
	Milk River	2,065,000
	Sun River	600,000
Nevada	Newlands	1,500,000
	Humboldt River	2,000,000
New Mexico–Texas	Rio Grande	500,000
Oregon	Owyhee	5,000,000
	Stanfield	100,000
	Vale	1,000,000
Utah	Salt Lake Basin:	
	Hyrum	930,000
	Ogden	3,000,000
	Deer Creek–Utah Lake	9,974,000
	Moon Lake	1,500,000
	Sanpete	300,000
Washington	Columbia Basin	63,000,000
	Yakima	460,000
Wyoming	Casper–Alcova	22,700,000
Total		$203,381,000

A~~bout~~ 20 per cent of this sum is to be spent in the consruction of the Verde project, Arizona, and the Casper-Alcova project in Wyoming, having a total irrigable area of about 150,000 acres. The balance will be used in building storage reservoirs on old projects; completing the Owyhee, Vale and Sun River projects, which have been under construction for several years, and the construction of the All-American canal for the Imperial Valley in California.

AGRICULTURAL RESULTS

Irrigated Areas and Crops.—In 1932, the latest year for which statistics are available, the irrigated area of the Federal irrigation projects was 1,555,144 acres, an increase over that of 1931 of 2,426 acres. The area cropped was 1,578,880 acres (of which 72,560 acres were dry-farmed), an increase of 58,526 acres. The gross value of crops grown on the projects was only $31,531,162, a decrease under the 1931 value of $9,022,875 and under the 1930 value of nearly $57,000,000. These figures reflect, of course, the low prices received for agricultural products during the past two years. The average value of crops per acre in 1932 was $20.69 compared with $26.70 in 1931 and $41.90 in 1930. The Federal irrigation works also furnished water in 1932 under Warren Act or other water service contracts to 1,512,405 acres, of which 1,196,400 acres were cropped, producing crops valued at $18,627,219, or $14,779,121 less than in 1931 and more than $36,000,000 less than in 1930. Thus the total value of crops grown in 1932 on land irrigated from the works of the Bureau of Reclamation was only $50,158,381, or $23,801,996 less than in 1931 and $69,503,439 less than in 1930.

Crop Distribution.—Based on acreage, alfalfa hay and cotton were the leading crops grown on the Federal irrigation projects in 1932, alfalfa being grown on 492,591 acres or 31.2 per cent of the cropped area and cotton on 124,331 acres or 7.9 per cent. This showed a reduction of approximately 39,000 acres from cotton to other crops in 1932, owing to the continued low price of cotton and cottonseed. Among the cereals, the acreage of wheat, barley, corn and oats increased slightly. Hay and forage showed an increase while vegetables and truck decreased in acreage. There was a decrease in the acreage of the seed crops, but fruit, nuts and sugar beets showed a substantial increase. Based on value, alfalfa hay was well above any other crop, being valued at $6,148,306 or 19.5 per cent of the value of all crops. Garden truck was second with a value of $5,605,254 or 17.8 per cent of the total, followed closely by sugar beets, $4,564,350, and cotton and cottonseed, $3,573,419. These four crops accounted for over 63 per cent of the total crop value in 1932. In the accompanying table a distribution is given by large groups, of the crops grown in 1932 on the Federal irrigation projects.

CROPPED ACREAGE AND VALUE, 1932

Crop	Acreage cropped		Value		
	Total	Per Cent	Total	Per Cent	Per Acre
Cereals	384,107	24.3	$3,026,892	9.6	$7.88
Other grain and seed	28,703	1.8	313,650	1.0	10.93
Hay and forage	1,173,412	74.5	9,306,441	29.5	7.94
Vegetables and truck	159,541	10.1	7,327,621	23.2	45.90
Fruit and nuts	61,588	3.9	3,136,397	9.9	51.00
Sugar beets	77,729	4.9	4,564,350	14.6	58.70
Cotton (lint and seed)	124,331	7.9	3,573,419	11.3	28.70
Miscellaneous	25,789	1.6	282,392	0.9	10.90
Duplicate cropped acreage	456,320	29.0	....	.....	.....
All crops for which detailed census was taken	[1]1,578,880	100.0	31,531,162	100.0	20.00
Warren Act projects	1,196,400	.....	18,627,219	.....	15.57
Total	2,775,280	.....	$50,158,381	.....	$18.07

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[1] The dry farmed area of this total amounted to 72,560 acres, producing crops valued at $365,416 or $5.03 per acre.

Settlement and Economic Development.—During 1933, 28 projects were under operation. On these projects there were 43,377 irrigated farms having a population of 181,007; 227 cities and towns with a population of 515,423; 723 schools; 780 churches, and 105 banks with a total capital stock of $9,138,700 and $92,625,000 deposits divided among 183,616 depositors. During the year 191 farm units were opened to entry on the Lower Yellowstone project, Montana-North Dakota; the Belle Fourche project, South Dakota; the Pavillion and Pilot divisions of the Riverton project, Wyoming; the Gooding division of the Minidoka project, Idaho, and the Willwood division of the Shoshone project, Wyoming. The tracts opened represented a combined irrigable area of 12,000 acres, and the individual units ranged in size from 11 to 116 acres.

There was considerable demand for farm units, especially on the Kittitas division of the Yakima project, where the lands opened to entry on March 4, 1933, were soon taken by duly qualified entrymen. In settlement work the bureau is being ably assisted by the local settlement organizations and the railroads traversing the projects. The colonization department of the Chicago, Burlington and Quincy Railroad is especially active in the settlement of the Willwood division of the Shoshone project. Special mention might also be made of the Vale-Owyhee Land Settlement Association, which is operating successfully on the Vale project. With better railroad facilities, which are still lacking on the Riverton project, the lands now vacant would be entered within a short time.

Livestock and Equipment.—Livestock and equipment on the 28 operating Federal projects were valued in 1932 at $40,790,102, or $8,702,706 less than in the preceding year. The inventory showed 69,638 horses, valued at $2,432,665; 9,723 mules, $518,677; 89,895 beef cattle, $2,081,909; 143,609 dairy cattle, $4,479,722; 441,518 sheep, $1,109,335; 122,202 hogs, $435,227; 265 goats, $902; 1,380 rabbits, $681; 2,062,576 chickens, turkeys, ducks and geese, $1,265,628, and 30,080 hives of bees, $105,315. Including the value of purebred and scrub sires of beef and dairy cattle, and that of brood sows, the total value of domestic animals, poultry and bees amounted to $12,744,370 and that of farm equipment to $28,045,732, of which motor vehicles accounted for $20,104,986.

PUBLIC LANDS

By Fred W. Johnson

Commissioner of the General Land Office

ENTRIES

The original public-land entries for the fiscal year ended June 30, 1933, embraced 3,117,781 acres. As usual, the homestead business was far in the lead. Over 87 per cent of the area in new segregations and 58 per cent of the area patented or certified were due to the homestead laws. Of the total embraced in allowed original entries, 2,358,231 acres were allowed under the stock-raising Homestead Act of 1916. There were 1,143,211 acres patented under the homestead laws, 610,648 acres patented under other laws, and 201,844 acres certified under state grants. At the close of the fiscal year there were embraced in pending unperfected entries, filings and selections 23,208,074 acres, of which 20,092,047 acres were contained in 54,718 homestead entries. The area of the remaining vacant, unappropriated and unreserved public lands, exclusive of Alaska, was 172,084,580 acres on June 30, 1933, located by states as shown in a table at the end of this article.

During the fiscal year the General Land Office submitted memoranda reports on a total of 73 public and private bills affecting the public lands, and 70 congressional bills became laws through the approval of the President. Instructions necessary to carry the laws into effect were issued in 49 cases.

The Office continued coöperation, through its field service, with state and private interests, in the suppression and prevention of forest fires on the public lands. Under the authority of the Emergency Conservation Act a camp was established in May to control a number of coal fires in Little Thunder Basin, Wyoming.

RECEIPTS AND EXPENDITURES

Receipts.—The total cash receipts from sales, leases and other disposition of public lands (including receipts from copies of records, sales of government property, etc.) were $3,812,208.11, and from sales of Indian lands $47,222.86, an aggregate of $3,859,430.97, the source of which and disposition in the Treasury are shown in the following table:

Source of Receipts	Distribution in the Treasury			
	General Fund	Reclamation Fund	State Fund	Total
Sale of public land	$30,287.14	$73,526.16	$4,501.83	$108,315.13
Fees and commissions	58,325.84	196,567.91		254,893.75
Bonuses, rentals, and royalties from mineral leases	354,956.45	1,700,919.30	1,214,942.35	[1]3,270,818.10
Proceeds of land and timber in Oregon and California railroad grant			107,490.20	[2]107,490.20
Proceeds of land and timber in Coos Bay wagon-road grant	5,812.41		[3]1,651.21	7,463.62
Fees from copies of records	9,515.26			9,515.26
Royalties on coal leases in Alaska	7,834.28			7,834.28
Royalties and rental from potash deposits		7,066.99		7,066.99
Power permits	15,347.95			15,347.95
Sale of reclamation town sites		3,365.63		3,365.63
Sale of standing timber in Alaska	6,326.73			6,326.73
Miscellaneous (surveying fees, rent of lands, forfeiture of contractors bonds, proceeds of Government property, etc.)	13,770.47			13,770.47
Total	$502,176.53	$1,981,445.99	$1,328,585.59	$3,812,208.11
Sales and leases of Indian lands				[4]47,222.86
Aggregate				$3,859,430.97

[1] First and fourth column contain $14,377.91 royalties received in Wyoming under the Act of June 26, 1926.

[2] This amount is payable to certain counties in Oregon in lieu of taxes.

[3] Amount payable to Coos County, Oregon, 25 per cent of proceeds of land and timber.

[4] Of the amount received as royalties from oil lands in the bed of the Red River, Oklahoma, 37½ per cent, $7,534.20, is paid to Oklahoma, and the balance, $13,557.04, is credited to the Kiowa, Comanche and Apache Indians.

Expenditures.—The total expenditures for the conduct of the business of the General Land Office and its field activities, including the expenses of the district land offices, amounted to $1,781,164.20, a decrease of 19 per cent from the previous year.

FIELD SERVICE

The designation of this service was changed on April 27, 1933, to Division of Investigations and placed under the immediate supervision of the Secretary of the Interior. In connection with the public land work of this office the field examiners investigated and reported upon 11,029 cases, of which 4,075 were adverse to the claimants and 6,954 favorable. Due to the activities of the field investigators, $31,497.85 were collected and deposited in the Treasury and 177,291.74 acres were restored to the public domain, representing fraudulent entries, etc., canceled on proceedings based on their reports, and 6,644.28 acres through action of the courts. Indictments were secured in nineteen cases, and of the criminal cases tried, three resulted in conviction and prison sentence was imposed in one case.

CADASTRAL ENGINEERING SERVICE

Work on the survey of the public lands was conducted in 21 states and the Territory of Alaska. Such of those surveys and resurveys as are measurable on a quantity basis aggregated 19,364 linear miles. In addition, miscellaneous surveys, including work for and in coöperation with other Federal agencies, were executed in every part of the public domain. During the year approximately 1,907,000 acres of agricultural lands were surveyed and resurveyed in the United States proper and Alaska, the larger fields of activity being in the States of Arizona, California, Nevada, Idaho and New Mexico. Coöperative surveys were executed for the Forest Service to the extent of approximately 503,500 acres. Work was also done for the National Park Service, the Geological Survey, the Federal Power Commission, and for various Indian Reservations. There were accepted and placed on file plats representing 1,222,777 acres of original surveys of public lands, and 1,380,643 acres of lands resurveyed, an aggregate of 2,603,420 acres.

MAPS

The map of the United States has been revised since the publication of the 1931 edition in anticipation of a new issue. New maps of Idaho and Oregon have been issued, and new maps of Arizona and Alaska are ready for printing. Recompilation of the map of Colorado is in progress. In addition, a number of maps were prepared for use in pending Indian claims before the United States Court of Claims.

MINERAL ENTRIES AND LOCATIONS

During the year 194 entries under the mining laws were patented and 676 mineral entries were received for action. Oil-shale placer locations to the number of 11,146 embracing approximately 1,448,980 acres were declared null and void.

OIL AND GAS

Under section 14 of the Mineral-leasing Act there were issued 23 leases as a reward for discovery of oil or gas as the result of prospecting under a permit. Leases embracing 3,001 acres were sold under section 17 through public sale on which bonuses aggregating $3,262.80 were bid. During the year 436 prospecting permits were canceled. On June 30, 1933, there were outstanding 802 oil and gas leases on the public land embracing 258,063 acres. The permits to prospect for oil and gas were 4,443 for 7,382,506 acres.

MISCELLANEOUS PERMITS AND LEASES

Eighty-four coal prospecting permits, 35 coal leases, 32 coal licenses, 78 potash permits, 3 potash leases, 14 sodium permits, 1 sodium lease, 3 aviation leases, 8 fur farming leases in Alaska, and 6 grazing leases in Alaska were issued. The leases outstanding on June 30, 1933, to mine coal, potash, sodium or phosphate were 453 covering 117,800 acres, while the permits to prospect for such minerals numbered 507 for 718,492 acres.

RECEIPTS FROM MINERAL LEASING ACT

Receipts from bonuses, royalties and rentals under the law providing for the leasing of mineral rights on the public domain aggregated $3,270,818.10. The largest receipts were obtained from the leasing of mineral lands in California, the amount being $1,643,222.88, and $1,224,017.37 in Wyoming. Smaller amounts were received from lands in New Mexico, Utah, Montana, Colorado, North Dakota, Washington, Alabama, Alaska, Louisiana, Idaho, South Dakota, Nevada and Arizona, in the order named. Under the terms of the law, with two minor exceptions, each State receives 37½ per cent of the receipts from bonuses, rentals and royalties derived from the public lands within its borders, the reclamation fund receives 52½ per cent and the other 10 per cent is paid into the Treasury of the United States and credited to miscellaneous receipts.

PREFERENCE RIGHTS FOR EX-SERVICE MEN

There were opened to entry through release from segregation or withdrawal or through survey or resurvey 2,473,190 acres, with preference right of entry to ex-service men of "any war, military occupation, or military expedition," including those citizens "who served with the allied armies during the World War."

GRAZING LANDS

For stock driveways to expedite the movement of stock between grazing areas and shipping points, 187,297 acres were withdrawn. The total area included in such withdrawals at the close of the fiscal year was 9,662,906 acres.

PUBLIC LAND WITHDRAWALS

(June 30, 1933)

	Acres
Stock driveways	9,662,906
Recreational area withdrawals	281,876
Air navigation sites	34,000
Carey Act withdrawals and segregations	932,092
Reclamation withdrawals	20,164,315
San Carlos irrigation project (Indian)	136,860
Water-power reserves (excluding Indian)	5,000,683
Reservoir sites	254,010
Public water reserves	471,401
Grazing districts, California and Montana	560,404
Oregon and California and Coos Bay unrestored timber land	1,260,854
For Boulder Canyon transmission line	2,040,210
For forest exchange with State of New Mexico	240,000
For National Forest purposes	131,168
For grazing districts in Montana	367,320
For New Mexico-Arizona Indian consolidation	1,134,972
For national parks and monuments	2,790,109
For game and bird refuges	250,288
For miscellaneous purposes (estimated)	500,000
Total	46,213,468

The above withdrawals are estimated to contain 27,068,532 acres net of Government land in the public domain states.

AREA OF VACANT PUBLIC LAND

States	Area in Acres		
	Surveyed	Unsurveyed	Total
Arizona	6,670,740	6,532,860	13,203,600
California	11,178,869	5,397,594	16,576,463
Colorado	6,664,153	881,620	7,545,773
Idaho	9,162,781	1,347,640	10,510,421
Montana	6,097,651	79,280	6,176,931
Nevada	30,468,957	20,801,320	51,270,277
New Mexico	11,918,807	1,159,478	13,078,285
North Dakota	146,301	....	146,301
Oregon	12,917,647	94,511	13,012,158
South Dakota	516,680	....	516,680
Utah	13,710,925	11,300,096	25,011,021
Washington	707,641	2,005	709,646
Wyoming	13,735,626	591,398	14,327,024
Total	123,896,778	48,187,802	172,084,580
Territory of Alaska[1]	....	346,182,675	346,182,675
Grand total	[1]123,896,778	[1]394,370,477	[1]518,267,255

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[1] This total does not include areas remaining undisposed of in the States of Alabama, Arkansas, Florida, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Nebraska, Oklahoma and Wisconsin, or the area of the vacant and unreserved surveyed public lands in Alaska.

RECLAMATION AND IRRIGATION

Action was taken on 476 original homestead entries involving lands in Federal irrigation projects; 276 assignments were considered; 111 desert-land entries and 218 final reclamation homestead entries were approved for patenting. Since the passage of the acts of August 11, 1916, and May 15, 1922, relating to state irrigation districts, 79 applications have been received. Fifty-nine of these applications, embracing 2,441,864 acres, have been approved, and 18 applications involving 363,274 acres have been rejected. Three hundred and fifteen cases under the desert-land laws were approved and 290 were canceled. There was also considerable activity under the Carey Act providing for reclamation of arid lands under state supervision, the Pittman Act to encourage the development of underground waters in Nevada, and the swamp land grant to several states entitled thereto.

PUBLIC SERVICE COMMISSIONS

By John Bauer

Director, The American Public Utilities Bureau

ECONOMIC CONDITIONS

Depression Factors.—The year 1933 was a busy one for the state public service commissions which were concerned heavily with utility rate adjustments, especially for electric service to household and business consumers. The fall in prices, costs and purchasing power which began with the financial crash in 1929 continued without abatement well toward the middle of the year. For the first quarter the contraction in purchasing power was accentuated not only by reductions in salaries and wages, but also by increase in unemployment and in the number of partially employed. Business was stagnant because of the wide prevalence of unemployment and also because of the bank holiday. Since about the middle of the year prices have either risen somewhat or have stopped falling. There has been increase in employment. At the same time, however, the total purchasing power of the masses of the people has improved to only a small extent.

Consumption and Revenues. — Throughout the period of the depression the utilities have made relatively insignificant, if any, reductions in rates. They are virtually the only important industries which have not made substantial price adjustments in line with new conditions. So far as the electric operating companies are concerned, they have been the most fortunate among the industries of the country. The number of domestic consumers, as well as the average domestic consumption, have kept on growing throughout the depression years. Comparatively the total revenues have fallen to only a slight extent, due almost entirely to curtailment in consumption by large industrial users in line with the decline in manufacture. Inasmuch as the rates charged to large power consumers have been fixed by the electric companies under severe competitive conditions, they were low and only slightly exceeded the actual out of pocket expenses in the generation and delivery of the current. As a result, the net loss accruing to the electric companies due to decline in large power consumption was comparatively small.

Earnings, Dividends and Salaries.—The net earnings of electric companies, as well as the dividends paid during the depression years, in most instances have not been materially reduced. Where substantial reductions in earnings and dividends have occurred, they were mostly due to lowered net profits from other than electric operations. The utilities have, however, taken advantage of conditions to reduce the wages and salaries of their operating and maintenance employees, but at the same time have kept the administrative salaries mostly on the pre-1929 level.

THE COMMISSIONS AND RATE ADJUSTMENT

Complaints.—These circumstances produced a spontaneous movement in various sections of the country on the part of the household and business consumers for lower electric rates. This assumed the form of complaints lodged with the commissions and the institution of hearings looking toward rate adjustments. The avalanche of complaints descending upon the state commissions has been very difficult to cope with. In the first place, the state commissions, even in ordinary times, were never provided with sufficient funds to make thorough rate investigations. Because of low salaries paid and inadequate personnel they have never been anywhere nearly equal to the task of carrying on their functions properly even as to more routine matters. When in addition to their ordinary work a few rate cases appeared, they usually had to make requests for special appropriations by the legislatures. This condition has been aggravated since 1929 when budget problems have become acute with practically every state government. Smaller sums have been provided for the commissions. They have been faced, therefore, with the task of entertaining mounting numbers of complaints when they had barely enough means to carry on their ordinary supervisory work.

Investigation Difficulties. — Even prior to the financial collapse a number of the state commissions had come to look upon rate cases as at best a necessary evil. In most rate cases they were confronted with exhaustive work and expense, and consumed a great deal of time, all of which they preferred to avoid as much as possible. In making valuations they were virtually compelled to proceed on the "reproduction cost" basis according to court decision. They could not see their way clear to simplify the processes and methods of valuation and could not obtain from the legislatures a change in regulatory system that would render continued appraisals and re-appraisals unnecessary. Consequently, even before the depression years, they had come to look upon rate cases as proceedings to be avoided if at all possible.

Procedure.—With the advance of the depression, when prices kept on declining and purchasing power was melting away, the conviction of futility of the usual rate case procedure was quite generally accepted by the state commissions. How could properties be valued as of a given date when before the valuation had been completed prices had so changed that the figures were no more applicable? For this reason the "negotiation" process came into vogue. While the commissions realized that adjustments in rates were in order, they preferred to plead with the companies for reductions rather than launch into a multitude of rate cases, and they could not possibly cope with all the cases that were pressing upon them. The results of the negotiation process, however, proved to be unsatisfactory by the end of 1932. This was due to the fact that the utilities realized the defeatist attitude of the commissions. If they consented to any rate adjustments at all, they did so negligibly so as to affect only slightly the total amounts charged to domestic and business consumers. In a number of instances the adjustment took the form of changes in rate schedules that made the burden of the small consumers heavier than before. The consequence was that consumers generally felt the inadequacy of the negotiation policy and insisted that the commission undertake thorough investigations.

EMERGENCY HEARINGS

Because of the growing pressure for lower rates, some commissions instituted "emergency hearings." This form of rate adjustment had no clear precedent in regulatory history, and the procedure was flexible. Testimony was adduced as to salaries paid to administrative officials, net earnings as shown in the company's reports, dividends paid, earnings per share of stock outstanding, and other items that usually are not considered at all, or only incidentally, in rate cases.

Cognizance was also taken in fall in prices, costs and purchasing power, employment, and business. Upon such an accumulation of not closely related facts which made up the record, orders for reduction in rates were issued. The official record was made mostly in the face of protests on the part of the utility, which upon the issuance of an order by the commission promptly instituted court actions to restrain the commission from enforcing the rates ordered. At best, such an emergency proceeding does not supply an adequate record upon which a commission can determine reasonably the rights of the utility or of the consumers. The official order is too much a guess. Consequently, it is subject to attack in the courts, and then cannot be definitely defended. This special type of proceeding is almost inevitably as unsatisfactory as the process of negotiation.

FAULTS OF THE REGULATORY SYSTEM

Rate Base.—Under the pressure of circumstances, consideration has been given to simplification and standardization of valuation and other rate case procedure. This has included adjustment of rate base through other means that reproduction cost valuation. Where the actual or historical cost of the properties is known as installed year by year, the amount may be readily adjusted to changing prices through the use of index numbers. Through this method the rate base of a company could be increased or decreased promptly with the change in prices as reported through official sources. Whether such short-cut methods are available and can be successfully used against attack in the courts remains to be determined through future experience.

Physical Valuation.—The years of depression have demonstrated cumulatively the woeful inadequacy of the existing regulatory system which, under the law of the land as generally accepted, depends upon physical valuation at the time of the rate inquiry. When prices and costs change slowly from year to year the system is relatively tolerable, for frequent and extensive rate adjustments are not required. But when prices and costs shift rapidly and when there is grave need for prompt rate adjustment, the system is not workable. During the war, rates could not be increased with sufficient promptness to meet the financial necessities of the utilities, while during the recent years of depression they could not be reduced to meet the necessities of the masses of consumers.

Necessity for Change.—Rate making experience during the depression has impressed upon the public the necessity of fundamental change in system so as to base rates upon definite facts and to avoid time consuming and dead-locking procedure. There has been a growing demand for stocktaking and revision so that regulation can be carried on systematically with exact and definite administrative provisions.

PUBLIC OWNERSHIP

In the meanwhile there has been a parallel movement in the revival of the public ownership idea in various sections of the country. This has its roots first in the dissatisfaction with the results of regulation. The public has come to realize that rate cases as hitherto conducted, even if tolerable to a certain extent in ordinary times, becomes utterly impossible at a time when quick relief to consumers is imperative. Substitution of "negotiation" and "emergency action" have also shown themselves largely barren of satisfactory results. In the second place, the unyielding attitude of the utilities toward rate reductions in the face of widespread unemployment and curtailed business activity has aroused public resentment. This expresses itself in increasing desire to do away with private ownership and operation of public utilities. In the third place, many communities see in the public works program adopted by Congress as part of the Recovery legislation, a means of solving their utility problems permanently. Due to the fact that labor and materials are to be had at comparatively low prices, that 30% of the total cost would be allowed by the Federal Government as an outright grant, and that the balance could be had at low interest rate from the Reconstruction Finance Corporation, many communities are seriously considering the construction of their own utility plants.

RATE ADJUSTMENT PROBLEMS

Financial Considerations.—This revived movement for public ownership has in turn given impetus to demands for rate adjustments. The state commissions find themselves hard pressed to cope with the situation. In some cases the problem of electric rates is still further complicated by the fact that electric companies also own and operate gas departments and transit lines which in most cases are liabilities. Such companies hold out the threat that any reduction in electric rates would have to be compensated by an increase in fares on the street railways and buses. While, strictly speaking, each utility service is legally required to stand on its own feet, a commission cannot help but take into consideration the total financial condition of the company. If it finds that one branch of the public service supplied by a utility corporation falls short of sustaining the capital structure, it is inclined to be lenient with the excessive rates charged for the electric service.

NRA Code Factors.—Additional factors that have been brought into rate adjustment proceedings before the commissions are probable increases in expenses due to the codes under the National Recovery Administration and the uncertainties in probable price movements as a result of the monetary-price policy announced by the National Administration. The probable effect of the code introduces a good deal of conflict as to the facts. The companies claim that they are compelled to increase the number of their employees and to raise wages. But they are not able to furnish precise figures as to the extent to which the adherence to the codes would raise the cost of operation. As to future prices, the commissions are, of course, utterly unable to make any determination. The two factors together have contributed materially to difficulties of making reasonable and prompt rate adjustments.

REGULATORY LEGISLATION

Extension of Regulation.—Another development in state utility regulation has been the extension of supervision over business that has been hitherto considered as outside the public utility field. New York, for example, has passed legislation to regulate the price of milk. A board of control has been created, and it is required to fix minimum prices to be paid by the distributors to milk producers and by the consumers to the distributors. Hitherto regulation has taken the form of prescribing maximum rates to protect the consumer, while this new legislation prescribes minimum rates to protect the producer. The justification for the new type of legislation is the belief on the part of the legislature that an emergency existed in the milk industry and that this threatened the welfare of those engaged in this industry and, in turn, the welfare of the communities dependent upon a continuous and safe milk supply. This is not the place for extended discussion of the nature of the emergency considered by the legislature and of the propriety or competency of the regulatory measures to remove the causes of the emergency. The new regulation is mentioned merely to show that the country apparently has entered an era of extending regulation to industries hitherto considered outside the field of public control, and toward objectives beyond the scope of past state supervision.

NRA. — On the national side there has also been an enormous extension of regulation over industries and activities which have been considered distinctly private and beyond the reach of public control. The National Industrial Recovery Act provides for comprehensive coordination and regulation of practically all industries in the country. It not only introduces price control in industries which have been highly competitive and which have never been thought of as public utilities but it also establishes control over activities which have been considered managerial and beyond the power of regulation as generally assumed. This applies to collective bargaining, the abolition of child labor, the fixing of minimum wages and of maximum hours.

Conclusions.—The year 1933 is significant in the history of public regulation of industry in that it has witnessed an extraordinary extension of control over industries and activities and at the same time has demonstrated the inadequacy of the existing regulatory policies, standards and processes. The realization seems to be growing in ever wider circles that if the states or nations are to regulate utilities in the interest of the people at large they must first work out a definite policy and prescribe concrete bases for rate determination; and, second, the administrative bodies must be provided with sufficient funds to perform their functions adequately. Utility regulation will not work satisfactorily at any time unless these provisions have been made. Especially will it fail of its objectives in times of changing costs, prices and purchasing power, unless adjustments can be made promptly on the basis of exact administrative procedure.

MUNICIPAL OWNERSHIP OF UTILITIES

By H. M. Olmsted

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PUBLIC WORKS ADMINISTRATION POLICY

Statement of Secretary Ickes. — Much controversy was caused by an announcement of Harold L. Ickes, Secretary of the Interior and head of the Public Works Administration, when in the fall of 1933 he made a public statement which in effect was an encouragement of municipal ownership projects. He called attention to such projects as acceptable and desirable recipients of the benefits of the Public Works Administration, including the provision of a Federal grant, which would not have to be repaid, amounting to 30 per cent of the cost of labor and materials. This statement, while not an announcement of a new situation, succeeded in making so evident the relation of the Public Works Administration to municipal ownership projects that it very naturally evoked a chorus both of criticism and commendation.

Objections. — The criticism came chiefly from the public utility companies and investors in their securities, it being claimed that Federal money ~~was~~ used, both as loans and as grants, for encouraging enterprises in competition with existing privately-owned utilities, and at least to the extent that the Federal Government would furnish funds that would not have to be repaid, tax payers in some cases would be called upon to help finance these projects who were themselves owners of securities of the competing private enterprises. Another objection, affected less by personal interest, was that the need of the times was for non-competitive public works rather than for stimulation of enterprises that compete with those already in existence. Both of these arguments have considerable validity, the first as an appeal to the concept of even-handed justice with respect to the *status quo,* and the second as being concerned with a fundamental principle of economic philosophy in relation to the causes of and remedies for the economic depression.

PROTECTION OF PRIVATE INVESTORS

The first argument would be more forceful if it were not for two other considerations. First, that in an emergency treatment of a grave economic situation, the niceties of exact justice as regards taxation cannot be very scrupulously observed, and in fact have by no means been so observed. More to the point, however, is the second consideration, that the *status quo* cannot be considered as a sound starting point in discussing even-handed justice, for it has become increasingly apparent during the past year, through the Senate investigation of utility companies, supplementing the similar investigations of recent years, that public utility financing has not been sound and the rate policies of the utility companies have, as is perhaps natural, been designed less for the benefit of the consuming public than for investors and financiers.

COMPETITIVE PUBLIC WORKS

As to the argument that no encouragement of competition in industry is desired at this time, that is a general proposition of great force. It is not, however, conceded by the Federal Administration as pure gospel. In fact, the policy of stimulating public works which has been earnestly advocated by many economists and publicists for the last three years has been very slow in gaining acceptance and even slower in reaching effective proportions. The effort in both the present and past Administrations has been to bring about recovery more through action within industry itself than by the assumption of governmental responsibility for problems of unemployment and mal-distribution of wealth. Therefore, it can hardly be expected that a government which has not accepted the prime responsibility for recovery by public employment should confine its activities within the circle of non-competitive public works.

Furthermore, the Administration in Washington has, of course, many tenets to uphold, and one of these, which was recognized as outstanding in the presidential campaign and subsequently, is that of greater consideration for public utility consumers, and this has been one of the most welcome principles of the new Administration. It is, therefore, thoroughly consistent with avowed Administration policies that public works having re-employment as the more immediate objective should include publicly-owned and operated utilities, both local and national, and a scrupulously tender regard for certain utility investors was hardly to be looked for, especially where securities of pyramided holding companies were purchased and where the buyers should be expected to beware.

Even during the Hoover Administration publicly-owned utility projects had been given the aid of the Reconstruction Finance Corporation, under the stipulation that loans for public works should be self-liquidating. As that policy was, in effect, an encouragement of municipal utilities, the most outstanding form of self-liquidating public works, the principle was more of an anomaly for the past Administration than for the present one. Another anomaly was presented by the fact that in some cases the same forces that opposed governmental expenditure for so-called non-productive public works were identified or allied with public utility investment interests.

EFFECTIVENESS OF REGULATION

But the chief justification for the governmental policy of encouragement to municipal ownership may be found in the growing realization of the ineffectiveness of state regulation, this ineffectiveness being due, at least as much as to any other factor, to the policies and efforts of the private utility companies, particularly in opposing the simplification of the rate-making process by stable valuations and effective accounting control.

Whether this announced policy of the Public Works Administration will greatly affect the course of municipal ownership remains to be seen. Even with the prospect of a 30 per cent Federal grant, so many municipalities are unable or unwilling to raise other funds that this fact, together with the usual opposition of the utility interests, may prevent advantage being taken of the situation to a very great extent.

THE TENNESSEE VALLEY AUTHORITY

The Federal Government has brought itself into close contact with the utility question in another prominent way through the passage of the Norris Bill for government development and operation of Muscle Shoals and the Tennessee River generally, and the creation of the Tennessee Valley Authority for carrying out this plan. While the Authority is concerned not merely with power development, but with a broad regional plan, physical, industrial and social, for the Valley, the power aspect, nevertheless, looms large in the picture, and earnings from the sale of power are an important element in the project. At least to the extent of the proper allocation for power purposes, the dams and power plans constructed are expected to be self-liquidating. Nevertheless, encouragingly low rates are expected to be made available to distribution agencies for electricity, and among such agencies municipalities are given special consideration.

THE T. V. A. AND THE FALL ELECTIONS

Alabama.—With the prospect of obtaining low-cost wholesale power from Muscle Shoals, a number of cities in the general vicinity of that project voted during the fall months on propositions for the construction or acquisition of municipal electric distributing systems. Up to the early part of November a dozen small cities in Alabama approved such projects: they were Andalusia, Bessemer, Decatur, Florence, Guntersville, Hartselle, Martsville, Muscle Shoals, Oneonta, Sheffield, Tarrant City and Tuscumbia. However, Birmingham, the largest city of the State (260,000 population), on Oct. 9 by a light vote, 10,034 to 7,004, rejected the proposal to acquire or build electric facilities which would utilize energy from Muscle Shoals. Other proposals to acquire or build water, street railway and steam facilities were likewise defeated.

Cincinnati. — This was followed Nov. 7 in Cincinnati, which is considered to be in the ultimate Muscle Shoals territory, by the rejection on the part of the voters of a proposal to acquire the gas and electric facilities of ~~the~~ private utility serving the city. Opposition to the measure was quite general, as the financial and legal aspects were considered indefinite and unsatisfactory. Another element contributing to the result was the fact that the Cincinnati Southern Railroad, owned by the city (but privately operated), passes within a few miles of the site of the T. V. A.'s proposed Cove Creek Dam power plant, from which transmission lines could be constructed along the railroad right-of-way at minimum expense to Cincinnati, where municipal distribution could be provided for without encountering the difficulties in the way of establishing a fair price, whether by negotiation or condemnation, for the depreciated property of an existing utility.

Knoxville.—On Nov. 25 Knoxville, Tenn., by a two-to-one vote, approved the issuance of $3,225,000 bonds for a municipal electric distributing system. Knoxville had already applied to the Tennessee Valley Authority for Muscle Shoals power, and became the first large city to authorize the necessary funds. The private utility is expected to make drastic cuts in rates in competition with the city's system.

OTHER ELECTION RESULTS

Camden, N. J. — On Nov. 7 two cities of somewhat larger size than Knoxville, approved municipal ownership projects. One of them was Camden, N. J., which voted to spend not more than $10,000,000 for an electric plant. If this project is carried through it will constitute the most serious municipal opposition to the powerful Public Service Corporation of New Jersey at the present time, although a municipal ownership proposition is also being urged in Newark, N. J.

Ohio.—The other city was Akron, O., which decided by a small majority to purchase or build an electric generating plant and distribution system. Sandusky, O., also approved a proposal for a $1,400,000 municipal power plant. Columbus, which already has a municipal plant serving a small part of the city, approved a bond issue for extensions to the plant.

Pennsylvania and Kentucky. — Fleetwood, Pa., authorized electric generating plant bonds to the amount of $110,000. Shelbyville, Ky., voted $125,000 for a municipal lighting plant.

San Francisco approved both a $12,095,000 bond issue for water distribution purposes, and $3,500,000 for raising the height of the Hetch Hetchy Dam, but rejected a proposition of $6,308,000 for a municipal electric distribution system.

Detroit voted favorably for a subway construction proposal which provides for the construction and operation of a rapid transit system. The estimated cost, $87,854,000, is expected to be met by a Federal loan and 30 per cent grant.

Other Results.—Nov. 7 brought certain other reverses as to municipal ownership proposals. Salt Lake City, Utah, defeated a proposal that the city issue $18,000,000 in bonds to build a municipal power plant. In Youngstown, O., a $500,000 bond issue for municipal electric distribution purposes was rejected. Portsmouth, O., turned down a municipal power plant proposal, and the small cities of Bordentown and Burlington, N. J., and Tyrone, Pa., also voted adversely on municipal ownership matters. Bethlehem, Pa., had expected to vote on a bond issue for a municipal electric plant for street lighting purposes, but was prevented from doing so by a court injunction.

MUNICIPAL ELECTRIC SYSTEMS

The Institute for Economic Research, affiliated with Northwestern University, has sponsored various researches into the extent and character of municipal ownership in the electric light and power industry. In 1933 there was made public for the first time the list of municipal electric establishments which had been compiled and brought up to date from time to time in connection with these researches and which represents what is probably the most complete list of this character in existence. The Institute's quarterly publication, *The Journal of Land and Public Utility Economics,* in its August, 1933, issue, presented a list of municipal generating plants in existence Dec. 31, 1932, numbering 903. This list gave the date of origin of each establishment and the source of power—steam engine, water power, etc.—at that date, and also the power source and horsepower capacity as of Dec. 31, 1930. This tabulation showed a total horsepower of 2,576,881, divided as follows:

Steam Turbines	1,339,818
Water Power	730,308
Oil Engines	324,443
Steam Engines	173,019
Gas Engines	9,265
Other Internal Combustion Engines	28

In the November, 1933, issue of the same publication appeared a list of municipal electric establishments in existence Dec. 31, 1932, which on Dec. 31, 1930, purchased all current distributed, 942 in number. The magazine also contained some corrections to the list of generating plants published in August, representing a net addition of 2.

In an earlier number (May, 1933) there appeared in the *Journal* an article entitled ''Municipal Ownership in the Last Five Years,'' by Prof. Paul Jerome Raver of Northwestern University and the Institute, now Director of Rates and Research, Illinois Commerce Commission, who is also responsible for the appearance of the two lists of municipal establishments just referred to. His article indicated that while there had been a decline of 539 municipal electric establishments (to a total of 1,885) in the five years 1928-1932 inclusive, 91 per cent of this decline took place in the first three years of the period. In those three years only 24 new municipal generating plants had come into existence, whereas in 1931-1932 66 were established. Although comprehensive statistics are not at hand for 1933, there can be little doubt that the decline in number of municipal electric systems has ceased, if it has not actually been reversed. The results of the fall elections were somewhat inconclusive, but the increased interest in municipal ownership, together with the attitude of the National Administration, may be expected to indicate a substantial further development in this field.

While complete data regarding the

total horsepower capacity of municipal plants since 1930 is not available, it does not seem likely that this total, which has been steadily increasing for many years, has suffered a decline. Although only 25 of the 66 new enterprises established in 1931-1932 were generating plants, of which 16 were powered by Diesel engines, while 40 municipal generating plants changed to private ownership in the same period, this does not necessarily indicate that the total horsepower decreased, even if the average size of the 40 were greater than that of the 25 for additions to the capacity of existing plants were being made from time to time.

RAPID TRANSIT IN NEW YORK

The new subway system in New York City, owned and operated by the municipality, has been extended in its operations during the past year, now reaching four of the five boroughs of the city. Traffic has substantially increased, but revenues, while in excess of operating expenses, are far from adequate for meeting interest and amortization. The social policy of the city, whereby the taxpayers have been assessed as much as necessary to preserve the five-cent fare on all subways, underwent a severe set-back when on Nov. 17 the second highest court of the State ruled that the portion of the new city subway already operating must be self-sustaining. While it is not mandatory that the fare be raised immediately, as the deficit can be funded for the time being, a rise in fare will be difficult if not impossible to avoid. Efforts for unification of the three subway systems will no doubt be stimulated in the hope that a uniform fare on the combined system will not be greatly in excess of five cents, but the city's bargaining power in regard to acquisition of the private interests in the two older systems is considerably lessened unless legislation can be obtained giving the city the right to divide the cost of transportation on its subway system between car-riders and property-owners.

PUBLIC OWNERSHIP OF WATER POWER

By H. M. Olmsted

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THE TENNESSEE VALLEY LEGISLATION

Whereas in 1931-1932 the Boulder Dam project carried the honors for outstanding accomplishment in the field of public ownership of water power, in 1933 the center of the stage has been held by the Muscle Shoals project on the Tennessee River, in Alabama, and the plans for the development of that river generally. President Roosevelt had indicated in his campaign that he was sympathetic with such a development under Federal auspices—a question about which controversy had raged for a dozen years—and early in 1933 he signed the Tennessee Valley Act permitting the Federal Government to go ahead with the Muscle Shoals project and establishing the Tennessee Valley Authority. This legislation, which has also been called the Norris Bill, was the culmination of the long-continued and valiant efforts of Senator George W. Norris of Nebraska, who has fought in season and out for the governmental development of this huge war-time project and its devotion to the public service.

The Tennessee Valley Act calls for a much larger program of governmental action and planning than had originally been contemplated. In addition to the development of power facilities, the improvement of navigation and protection against floods, and the production of fertilizers and nitrogen products for munitions, the Act contemplates a thorough-going regional planning program for the Tennessee Valley, including planning for the proper use of marginal agricultural land, the reforestation of all suitable lands and the prevention of soil erosion generally, and the furtherance of a well considered industrial, commercial and agricultural program for the region, designed for the economic and social well-being of its inhabitants.

TENNESSEE VALLEY AUTHORITY

The administration of the Act is placed in the hands of the Tennessee Valley Authority, a public corporation, consisting of a Board of three members appointed by the President with the consent of the Senate, for terms of nine years (except the first three appointments, which are for three, six and nine years respectively). The Board members are not to have any power or fertilizer connections that would adversely affect the purposes of the Act, and in the effort to protect against future appointments of members hostile to such purposes it is required that the appointees "must profess a belief in the feasibility and wisdom of the Act." The Authority has power to construct dams, reservoirs, power houses and structures, transmission lines, navigation projects and incidental works, and has the right to condemn property it needs if it cannot be purchased at reasonable prices. It has charge of the maintenance and operation of the Muscle Shoals plants and other Federal properties existing or to be constructed in the region. For its first operations the Board was authorized to issue and sell United States bonds to the amount of $50,000,000.

While the objectives of the T. V. A. are very broad, the development of water power is a fundamental part of them and may be regarded as the key activity of the Authority. The first large construction work undertaken by it is the completion of the Muscle Shoals project and the construction of the Cove Creek or Norris Dam in Eastern Tennessee in the upper part of the Valley. The present installed capacity of the Muscle Shoals power plants is 195,000 kilowatts of water power and 60,000 kw. of steam power. When installations under construction or those planned for the immediate future in the entire Tennessee basin will be completed, the total installed capacity will exceed 1,000,000 kw., and it is estimated that about 3,000,000 kw. can ultimately be developed.

MUSCLE SHOALS COMPARED WITH BOULDER DAM

For comparison with the Boulder Dam project, it can be stated that the latter is expected to have a capacity of about 800,000 kw. with annual production of some 4,240,000,000 kilowatt-hours. The prospective 3,000,000 kw. for the Tennessee River project may be taken to represent an annual production of approximately 25,000,000,000 kwh. On the Colorado River a single dam 770 feet high is called for, creating a storage reservoir 115 miles long and containing 30,500,000 acre feet. On the Tennessee project some 200 dams are contemplated, 7 high dams on the Tennessee River project and the Cove Creek Dam on the Clinch River providing a total head approximately equal to that of Boulder Dam. The reservoirs in the Tennessee Valley will total 15,750,000 acre feet. The total cost of the Boulder Dam project is estimated at $165,000,000 as compared to $1,200,000,000 for the Tennessee Valley development.

While power production and flood control are important features of both projects, that for the Tennessee River is expected to provide some 1,900 miles of navigable waterways, while the Colorado River is not to be navigable. However, the Boulder Dam project is largely affected by the need of water for irrigation and city water supplies, which is not the case with the Tennessee River. The electric production of fertilizer is a factor at Muscle Shoals but not at Boulder Dam, and the scope of governmental activity on the Tennessee project is much greater than on the Colorado River.

The Tennessee River proper has a length of 652 miles and its drainage basin includes 40,600 square miles and a population of about 2,000,000 people, in parts of seven states. The difference in elevation between the source of the river at the junction of the Holston and French Broad Rivers in eastern Tennessee and its mouth at Paducah, Ky., on the Ohio River, is 500 feet. The stream flow has great variation and the basin receives heavy rainfall.

UNIFICATION AND FEDERAL CONTROL

One of the special justifications for a development of the Tennessee Valley by Federal authority lies in the fact of the river's extremely variable flow. While it would, of course, be possible to create separate power developments under either public or private auspices at different points on the river and tributaries, it would not be possible to coordinate these sufficiently either as to planning, construction or operation. It is essential to the most effective and economical development, from the standpoint of power, flood control and navigation, that the various dams, power plants and even the reforestation activities be closely coordinated. For one thing, if such is not to be the case, the power developments would provide a relatively low amount of primary or firm power, and at various times and seasons there would be a great amount of surplus or dump power, much of which would be either wasted or found unprofitable. By wise and comprehensive planning of the entire river and its tributaries, stream flow and power-plant operation can be brought under such control that a very high proportion of firm power can be attained. Dr. A. E. Morgan, Chairman of the T. V. A. and an engineer of wide experience in river control and development, claims that, with unified ownership and control, the unit cost of power can be half of what it would be with divided ownership and management. And the economic power going with such unified control is too great to entrust to a private agency, even under public regulation, for regulation has not shown that it can effectively control in the public interest such a huge unit of economic power in private hands.

STIMULATING THE USE OF ELECTRICITY

It has been contended that maximum development of power facilities is of somewhat academic importance at present. David Lilienthal, the member of the Board who is in charge of the power aspects, has frankly stated that existing power facilities in the area of the Tennessee Valley are more than enough to care for the present demand for electricity, but the T. V. A. is pursuing a bold policy of stimulating the consumption of electricity, holding that the present rate of use in the greater part of the United States is meager compared with what it might be and with what has already been achieved in such localities as Ontario, Canada, and a few cities of this country. Mr. Lilienthal calls for a realization of the existence and potentialities of the vast sources of electricity, and a new attitude leading to its greatly increased use; and he emphasizes the need of comprehensive rate revision, lower operating costs and a wide distribution of electrical appliances.

The T. V. A. is attempting to develop its market for electricity by stimulation of demand by existing users and by its general industrial program for the Valley, rather than by taking customers away from existing power concerns. It is not engaged in any campaign directed against the existing power interests in the region affected, and it has been announced that if existing power facilities are taken over, fair prices will be paid with due regard to actual investment in such facilities.

RELATION TO MUNICIPALITIES

While the T. V. A. does not participate in local controversies regarding municipal ownership of electric facilities, it nevertheless has the policy of preferring to deal with public rather than private agencies for distribution. Already, a number of small cities, together with Knoxville, Tenn., have adopted municipal ownership in contemplation of obtaining T. V. A. power, as has been referred to in the article on "Municipal Ownership." In that article, certain broad questions which affect the power aspects of the Tennessee Valley enterprise are also discussed.

MUNICIPAL CONTRACT RATES AND REQUIREMENTS

The first contract between the T. V. A. and a municipality for the supply of electric power was made in November, 1933, with the city of Tupelo, Miss., which has a population of about 6,500. The T. V. A. is to build a substation, and a 75-mile transmission line to Muscle Shoals. Tupelo has a municipally-owned-and-operated electric distribution system, and has been buying power at wholesale from a private power company at a price of 17 mills per kwh. The contract for the T. V. A. is claimed to represent a wholesale rate to the city of about 7 mills at a 35 per cent load factor and about 6 mills at a 50 per cent load factor. The rates which the city is permitted to charge include a maximum of 3 cents per kwh. for residential and commercial use, stepping down to 4 mills for the excess over 400 kwh. per month for residential consumers and to 8 mills for all over 2,000 kwh. for commercial consumers. Industrial rates range from 1 cent down to 2½ mills. The revenues obtained from these rates will be applied in the order indicated to the payment of operating expenses, interest on indebtedness of the electric system, retirement of indebtedness, reasonable reserve for new construction and contingencies, a payment to the municipal treasury of an amount equivalent to taxes on a corresponding private plant and finally a return of 6 per cent per annum upon the municipality's equity. If any surplus remains, the rates are to be reduced. However, these rates are predicated upon increased consumption of electricity in Tupelo and Lee County, of which it is County seat, and the T. V. A. will encourage such wider use and conduct an intensive demonstration in rural electrification of the County. If the rates result in a deficit, a surcharge may be applied on the commercial and industrial consumers.

The rates charged by the T. V. A. to the city are adjustable according to the cost of living index of the Department of Labor on the basis of a change of 20 per cent or more in a six months' period.

The intent of the T. V. A. is to make its power activities self-sustaining, after including interest, amortization and taxes. There is, of course, the great difficulty of estimating at this time the amount of use to be made of the facilities, and there is likewise the debatable point of a proper allocation of fixed charges on dams as between power, navigation, etc. This is a particular problem at Muscle Shoals, which was constructed as a war measure, with power production for general distribution a minor factor. The T. V. A. is appraising the property at Muscle Shoals with the purpose of obtaining a reasonable allocation; prior to such determination it has used an investment figure of $125 per kw. in its computations as to power costs.

YARDSTICKS

The Muscle Shoals, Boulder Dam and similar public developments are sometimes referred to as establishing yardsticks by which rates and costs of private power enterprises may be judged. The analogy is not perfect. With private power development, the element of profit enters; public projects omit this, but include amortization of capital for a considerable period. Taxes are paid by the private development; the equivalent of such taxes may or may not be charged against the public projects. Interest rates are usually lower with the public project, while the private enterprises claim higher operating efficiency. The effort is not so much to set up a standard exactly comparable to conditions of a private enterprise, but to show what with all appropriate elements considered a publicly-owned and operated project can actually do. If the latter proves its ability to serve consumers effectively and at lower total cost, the question then arises as to whether private enterprise in the electric light and power industry should be subsidized by higher rates than are required for public enterprises.

OTHER OUTSTANDING PROJECTS

St. Lawrence.—The plan for the development of navigation and power facilities on the St. Lawrence River under joint auspices of the United States and Canada, with the State of New York, through its State Power Authority, handling the power aspect, has been but little in the public eye, as the treaty between the two countries is still to be acted upon, and construction has, therefore, been held in abeyance.

Boulder Dam. — Construction of the Boulder Dam in the Black Canyon of the Colorado River, which was started in April, 1931, has been carried forward during the past year. The huge task of installing the concrete has gotten under way, but it will be several years before the project will be operative. Meanwhile the aqueduct for the transportation of water from the Colorado River, at a point well below the dam, to Los Angeles and nearby municipalities has also been progressing.

Columbia River.—Progress on two other large power developments in the far west, on the Columbia River, is being achieved. One of these is at Bonneville, Oregon, the head of tidewater, where a dam is planned, to improve navigation and provide a 62-foot head, with an initial installation of 90,000 kw. and a possible ultimate capacity of 540,000 kw. The total cost is estimated at $31,000,000, and $20,250,000 of P. W. A. funds has been allocated to the War Department for the construction. The other project is the Grande Coulee Dam, in Washington; $63,000,000 of P. W. A. funds, including a 30 per cent grant, has been tentatively allocated to a state body, the Columbia Basin Commission, but there is a prospect that the construction of this and the Bonneville Dam will be combined as a unified Federal project.

WATER SUPPLY

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FINANCING

Federal Aid for New Construction.—Up to August when the Public Works Administration became operative under the National Industrial Recovery Administration Act, loans for waterworks construction were made by the Reconstruction Finance Corporation. They bore interest at rates from 5 to 6 per cent; the term of the bonds varied widely. Work under the R. F. C. is not subject to the restrictions of work under the P. W. A. Under the latter, money is loaned at 4 per cent and the maximum term of the bonds is 30 years. The government grants outright 30 per cent of the cost of labor and materials which generally amounts to about 80 per cent of the project. The government will exercise strict surveillance over the plans and specifications and all estimates of payments to the contractor. In May, it was estimated that about 700 municipalities would apply for $166,000,000 for waterworks construction. Up to Oct. 27 about $30,000,000 had been allocated by the P. W. A. for 70 non-Federal waterworks projects. Waterworks projects are supposed to get preference from the P. W. A. On Nov. 7, the P. W. A. had 1,190 employees. The Tennessee Valley Authority which now has nearly 1,000 employees was organized in August to develop water power, provide flood control, navigation and water supply and, incidentally, social and economic planning. Norris (Cove Creek) dam will develop 165,000 kw of power and the immense storage available will double the capacity of Wilson dam.

Meeting Lowered Income. — Some water departments cut salaries from 5 to 10 per cent; others increased the efficiency of the staff. Fairmont, Minn., left salaries intact, but increased the working hours of shift men, and postponed non-essential repaid work. Use of a five-day week at Johnstown, N. Y., cut expenses 25 per cent. At Warren, Ohio, all employees return 25 per cent of their wages to the general city fund. Furloughing salaried employees and staggering the working periods of day laborers resulted in 9 per cent saving at Pittsburgh, Pa. The pumping station at Sharon, Pa., was shut down eight hours at night. Reduction in costs of materials have proved a benefit to municipalities which are putting in extensions and betterments. At Warrensburg, N. Y., consumers who desire to work out their water bills are employed on the extension of mains. Waterworks officials have been sorely pressed to resist the diversion of water funds to general city purposes. It is impossible to budget retirement of bonds unless the waterworks officials can be assured of the control of all waterworks funds. Free water to municipal and charitable institutions should be done away with. The Ohio Court of Appeals recently decided that the law permitting free use of water to schools (also hospitals, churches, cemeteries and charitable organizations) is unconstitutional. Over twenty states have laws enacted or pending requiring waterworks plants to be self-supporting and self-liquidating. House to house leakage and waste surveys have given employment and resulted in a saving in many municipalities.

IMPROVEMENT IN METHODS AND EQUIPMENT

Sources of Supply.—The activities of the Civiliam Conservation Corps in planting and road construction will be of future benefit in watershed reforestation and protection. Hearings before the Water Power and Control Commission on the application of New York City for an additional supply of 94,000,000 gallons a day by wells in Nassau, Queens and Kings Counties were continued; the Commission refused the request for 54 mgd. in Nassau County. Approval of the new wells in New York City has not yet been given; more than 200 mgd. is now taken from the underground water resources of Long Island; the U. S. Geological Survey is making additional surveys. The American Association of Water Well Drillers, in coöperation with the American Specifications Institute, has prepared a standard set of specifications covering well drilling, casing and testing. For the Boulder Dam spillway record-size models on a 1/20 scale and necessitating water supply at the rate of 112 sec. ft. were used to guide the decision to use side-channel spillways and drum gates. Economy in earth dam construction, New Mexico was secured by using gravel obtained from the site, rolled in 8-inch layers and settling the embankment by water. The gravel fill was protected from percolation and wave action by welded covering of #5 ingot iron plates. The Hardy dam, on the Muskegon River is a porous sand embankment 120 feet high on a pervious foundation, placed by semi-hydraulic methods. It contains a flexible concrete core wall; foundation pressures in design were limited to 6.5 tons per square foot, and average allowable settlement of 1 inch per 5,000 lbs. per square foot of loading. Settlement practically ceases after the load is applied. The initial seepage was 6.7 sec. ft.; after six months, 5.7. Slips which have been disastrous to several earth dams built by the hydraulic fill method are to be prevented in the El Capitan dam at San Diego by forming heavy concrete arched retained walls at the up and downstream toes and placing a heavy blanket of rock fill on top of the sluiced material to stabilize it against slips.

Distribution Systems.—The Commission on Utilities of the President's Conference recommended that gas and water services occupy the same trench, a second trench be used for electric and telephone lines, and a third trench for sewers, at an estimated saving of 15 to 20 per cent over five trenches. Cast-iron pipe has been improved through improved control of annealing processes. There is a continued trend toward use of couplings of the Victaulic and Dresser types and toward the use of bolted joints. The Aston process has made possible the cheaper production of wrought iron plate pipe. There have been improvements in and increased use of cement and bitumastic linings, both applied centrifugally. Recent improvements in composition have produced an enamel which is less susceptible to defects by extreme temperature ranges. A welded steel pipe, 30½ inches in diameter, and 10 miles long in the Pennsylvania coal fields, has a lining of bitumastic enamel, 3/32 of an inch thick, applied centrifugally. A 47-mile section of steel pipe on the Hetch Hetchy exhibits the cost of several kinds of coverings selected for each section after exhaustive soil tests. Felt wrapping cost $0.03 per square foot for 22 miles; ½-inch cement mortar wrapped on cost $0.097 for 23 miles; 2-inch cement mortar wrapped cost $0.265 for one mile; 6-inch poured concrete cost $0.471 for one mile and aluminum paint cost $0.035 for 0.14 mile. The mortar is reinforced and wrapped on by machine and is a distinct forward step. In sea water where various types of metal pipe had failed, an armored rubber pipe at Singapore after one year's submergence and under 45 lbs. internal pressure, indicated ability to resist corrosion. Cement-asbestos (''Transite'') pipes were installed in Winnipeg where corrosive soil conditions have damaged both metal and concrete pipes; 810 feet of 18-inch pipe, and 440 feet of 14-inch pipe were laid; in Massachusetts a subaqueous line has been laid in sea water. A thin steel pipe of large size protected inside and out with bitumastic enamel, and wrapped outside with reinforced mortar held in place by a cloth bandage has been used for 78-inch line at Seattle. A new type of Venturi meter has been developed at University of Iowa having side contractions only, thereby eliminating the usual sump upstream from the throat and allowing free drainage of the line. The Cuyahoga Valley Water Works, Inc., of Cleveland, has applied for a Federal loan to construct an intake tunnel to serve the industrial district of Cleveland; each industry is to provide its own pumping facilities.

Coating Water Pipes in Place.—A serious problem in the operation of a cast-iron distribution system is the reduction of carrying capacity of the mains. Hard water causes deposits of calcium carbonate which in some cases may protect the pipe; waters softened by the addition of lime often cause deposits which interfere with the flow in the pipes. Soft waters cause encrustations or tubercules, attributed to the activity of bacteria, producing roughness and a reduction in carrying capacity. Cleaning the pipe by scrapers may injure the original coating so that in a short time deposits again occur and the carrying capacity is reduced. Electro-deposition of bituminous material from an aqueous medium, applied after cleaning, has been tried with encouraging results. The cost quoted is about 15 cents a foot for 6 inches diameter. Pipe in buildings has been cleaned by sand blast and a grout coating applied with considerable success. It will be a great advantage to the public if a method is developed for coating old cast-iron mains in place, thus prolonging the useful life of a distribution system and avoiding the cost of laying new or larger mains.

Centrifugal Pumps. — There has been a marked increase in the use and economy of centrifugal pumps. Bids received in Seattle for nearly similar capacities (2,000 gpm.) and heads (190 ft. total) in 1915 and 1933 resulted as follows: In 1915 the stages varied from 1 to 5, speeds from 690 to 1750 rpm. and efficiencies from 69.5 to 73. In 1933, 14 bidders figured on single-stage pumps at 1750 rpm. and efficiencies from 77 to 86 per cent; or an increase of 15 to 20 per cent in 18 years. This represents an annual power-cost saving of over $1,000 per year. Single-stage pumps are now used for heads as high as 250 feet. Higher suction lifts are possible than 20 years ago. Owing to internal water disturbances the centrifugal pump does not work well with high suction lifts. Seventeen feet is the maximum allowable and for the best practice not more than 10 feet should be permitted.

Electric Pumps.—Motor drives are being extensively used in large stations. Pittsburgh completed the new brilliant pumping station with an installed capacity of 160 mgd. to replace the steam station which has operated daily since 1878. Average operating efficiency on test is over 85 per cent. Seven feet suction on pumps, and static heads of 328 and 236 feet. Six units are installed, 4 of 28 mgd. capacity for the higher head and 2 of 24 mgd. for the lower. Continuity of power is assured by cables to 3 substations of the Duquesne Light Co. Direct operating charges will be reduced $72,000 per year, which will more than offset the fixed charges of $45,400 on a $775,000 total outlay. At Detroit the new Springwells station contains 12 electrically driven centrifugals for high lift and four for low lift, capacities ranging from 30 to 50 mgd. per pump. A steam-electric plant is a part of the station; and standby service is assured by a tie-in to central station service. At Erie, Pa., a low service pumping station includes one 16, two 8 and one 2 mgd. motor-driven centrifugal pumps.

TREATMENT OF WATER

Public Health.—The New York State Department of Health made an announcement that a great saving to the people of the State results annually because of the policy of the Department in requiring chlorination of water supplies. The Department plans to require filtration of all future water supplies even where large storage is provided. On March 14 and 15, an ice jam in the Niagara River caused an accumulation of sewage and waste from the city of Buffalo, and when released threatened every municipality on the Niagara River, Lake Ontario and the St. Lawrence River. Treatment plants prevented entrance of typhoid to these towns. Studies by U. S. Public Health Service led Streeter to conclude: "Further reinforcement of water purification systems dealing with highly polluted raw waters probably will tend to follow present lines, notably in the direction of intensified chlorination, aided by ammonia and activated carbon treatment, and in that of elaborated and improved preliminary treatment. . . . Treatment of sewage and industrial wastes will receive more attention as special measures for protecting water supplies."

Removal of Tastes and Odors.—Tests at the Queens Lane plant show better taste and odor removal by slow sand filtration than by rapid sand filtration, by from 22.3 per cent in 1931 to 72 per cent in 1928. Experiences at the Philadelphia filtration plants indicate that slow sand filtration, preceded by roughing or prefilters and adequate sedimentation, is an effective method to eliminate objectionable tastes and odors. Ammonia with chlorine prevents the formation of evil-tasting chloro-phenol compounds. However, tests at Detroit revealed the formation of nitrite compounds in the filter effluent with consequent waste of chlorine and impaired sterilization; further study is required. Activated carbons remove objectionable taste and odor-producing compounds from solution by absorption; they are gathered on the surface without chemical reaction with the carbons. . . . For all around use, carbons seem best to answer the purpose of taste and odor removers, although a field report (Lexington, Ky.) and laboratory tests indicate they are practically valueless for absorption of hydrogen sulphide gas from water. On the other hand, later reports from several plants show removal of hydrogen sulphide gas where the carbon has been applied directly on top of the filters. —in the case of Newport News, Va., with a dosage of 30 pounds per million gallons. Tests on bleaching clays for odor absorption showed a value, for the particular odors of less than 2 per cent of that of a good grade of activated carbon.

Coagulants.—Recent studies at Richmond indicate that the temperature of the water has a marked effect on the consumption of alum; also that effective stirring devices such as flocculators (not merely baffles) reduce one amount of alum. The saving at Richmond is $23,000 per year, besides cutting the wash-water in half. Liquid alum is being used at the Montebello filters, Baltimore, and effects a saving in breaking, handling and dissolving the commercial alum. Sulphuric acid and bauxite are used for the solution.

Ferric compounds are becoming less costly and more attractive as substitutes for alum as coagulants for removal of color or turbidity. The range in *pH* values both sides of neutrality is decidedly broader than with alum, reducing the need for correctives such as soda ash. Ferric floc is heavier than alum, allowing shorter sedimentation periods.

Boulder Dam.—At the construction camp a complete treatment plant (presedimentation, aeration, softening, recarbonation, filtration and chlorination) has rendered fit for domestic use the undesirable Colorado river water, which has a range of suspended solids from 350 to 59,400 ppm., and averaging yearly 6,000, and an average total hardness of 367.

CONSTRUCTION

In spite of the efforts during the past two years by the American Water Works Association, the construction industry and others, money has not been made available for a large program of waterworks improvements except in the case of the Colorado river development and the Los Angeles aqueduct, where most of 91 miles of tunnels are under contract. Progress on the foundations of Boulder dam (Colorado River) is far ahead of schedules; foundation rock was exposed and concreting started in July; as much as 6,000 cubic yards of concrete a day has been placed since that time. Excavation and lining of the aqueduct tunnel for the (Boston) Mass. Metropolitan District has advanced during the year, and the lining is about 50 per cent completed (10 miles in the western part). The contract for the cut-off walls (dredged concrete caissons) for the main dam and dike of the Swift River (Quabin) reservoir was let during the year, and will be about 75 per cent completed. The Chicago Avenue Lake and Land Tunnel has been under construction since 1924, and will be completed in 1934. It is about 11 miles long, and 16 feet in "diameter" with a capacity of 700 mgd. It will cost $14,000,000. It is not built by contract but by city forces, an average of 700 being employed daily.

STREET AND HIGHWAY TRAFFIC REGULATION

By Ernest P. Goodrich

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GENERAL

It seems safe to assume that the depression of the past four years has been helpful to traffic engineering. Problems of traffic control, safety and convenience have been brought before the public in a widespread educational program carried on from a number of sources. Traffic studies, surveys, and street and highway construction, looking to the relief of congestion and accidents, have all been made possible through the release of large sums of money ~~designed~~ for unemployment relief, in contrast to normal times before 1930 when it was almost impossible to secure financing for these important phases of public welfare. To this work may largely be attributed the steady decline of traffic accidents. In 1932, such accidents showed a drop of 12 per cent over the preceding year, and yet it was necessary to note 29,500 deaths through traffic accidents that year. Figures for the first nine months of 1933 show a further decline of 3 per cent over the 1932 record. No doubt some of this improvement may be attributed to educational efforts along lines of safety and more efficient traffic control. While building construction has been at a standstill, and highway construction has been lagging to an unprecedented minimum, there has been unusual enthusiasm in traffic matters.

TRAFFIC QUANTITY

There was a drop in the number of automobile licenses for the year. Records show 24,136,879 licenses in 1932 and 23,720,000 for 1933. Gasoline consumption for 1932 was 15,497,410,000 gallons and for 1933 it is estimated at 15,250,926,000 gallons. These factors, however, cannot be taken as large items in the lower accident record because of the great drop in the sale of new cars and, presumably, in the number of new drivers.

TRAFFIC REGULATION

Standardization of Equipment for street traffic regulation, studies for which have been in progress since 1926, has reached the stage of final report and a proposed code. The report and code are based on studies made in 100 cities and in 35 states having a total population of 33,000,000.

New York.—A novel 4-cycle traffic signal was tried out at 42d Street and Fifth Avenue, New York City, during December. It was installed at private expense with the approval of the Police Department, and is designed to reduce the hazard to pedestrians.

Philadelphia. — An interesting development in Philadelphia is a Traffic Engineering Complaint Bureau which employs four full-time workers. A comprehensive system of investigating complaints has been worked out. The plan is an orderly and tactful manner of handling traffic adjustments.

Yale University has established a Bureau for analysis of highway traffic and transportation.

The ''Steady-Flow'' System, although still in the experimental stage has increased in favor, and is being tried out in a number of cities.

The ''Two-Lane'' Traffic Plan has been admittedly sucessful in facilitating traffic in the cities where it has been tried.

Traffic Law Check-Up.—A check-up of observance of traffic laws was made in Washington, D. C. in order to judge the effectiveness of such laws. It was found that violations vary according to control devices. That is a very potent conclusion, in the light of which the great number of try-outs of signal devices takes on new importance.

NATIONAL SAFETY CONTEST

The 1933 National Traffic Safety contest has 250 cities entered. It is conceded that this national contest in 1932 was a large factor in reducing accidents to a larger degree than in any one year before that time. The grand prizes for 1932 were awarded to Pittsburgh and Evanston, Ill., which had achieved superior traffic safety results. Milwaukee led each month during 1933 in the class composed of cities of over 500,000, with Rochester, N. Y., and Bedford, Mass., leading in their respective population classes. The contest is planned for a permanent part of America's war on accidents.

ACCIDENTS

In many places there has been an effort to collect data which would fix the blame for accidents. While this data cannot be taken as infallible, it is considered indicative. Detroit's economy in lighting may not be responsible for a high accident record, but the data is startling enough to discourage this form of economy in cities. New Jersey gathered data on the ''divisional island'' and summarized the findings in the statement that 35 per cent of the accidents on the road studied could have been eliminated by the use of the ''island.'' The Institute of Traffic Engineers conducted a questionnaire of opinion on ''speed'' as a cause of accidents. Results were tabulated from 29 states, the consensus of opinion being that speed should be determined and regulated by local conditions and circumstances and that no generalizations on the subject could be taken as significant apart from other considerations. Psychological tests for drivers continue to gain in favor as a means of qualifying careful drivers. The questions of accidents is, therefore, considered from three different angles: qualification of drivers, regulation of speed, and correct devices for protecting highways.

TRAFFIC STUDIES

Brockton and Chelsea.—Two Massachusetts cities, Brockton and Chelsea, were used for a traffic survey designed to present plans for greater public safety rather than for the solution of a traffic problem. Brockton had had a particularly bad accident record and the results of the study, made by the Governor's committee showed reasons for this record and means for obviating it.

Los Angeles made a study of pedestrian traffic as an unemployment project. It is unique as the first important study of pedestrian flow; while most of the data were of local interest only, certain comparisons were made which have larger value.

Yonkers, N. Y., made a comprehensive study of traffic problems relating to peculiar street layouts. Among other reforms suggested by it, the study showed the advisability of by-pass routes and parking elimination.

Rochester. — Unique in the 1933 surveys is the "Origin and Destination Survey" conducted in Monroe County, N. Y., for the purpose of ascertaining the need for additional arterial highways to connect the City of Rochester, which is situated approximately in the center of the County, with the southeastern quadrant. This study was made as an unemployment relief project. Its results, carefully analyzed, are suggestive for other cities with such a problem.

TRAFFIC EQUIPMENT FOR ECONOMY

The City of Pittsburgh has recently justified its expenditures for traffic equipment—lights, signs and paint markings—by showing that property damage accidents amounting to $716,000 had occurred at locations where traffic equipment costing $63,500 had been recommended. The number of fatal accidents at these points was put second in the report. The expediting of traffic was put third in importance.

INTERSECTION SIGNALIZATION

Coördination of street and rail traffic at intersections has been the subject of an interesting study in Los Angeles resulting in the successful installation of a system of controls and signals. A study in 22 cities and of 354 intersections was completed during the year and covered data for over 12 months both before and after the signalization. Two other studies of this character were made, one at Philadelphia covering 190 crossings; and one at Trenton, N. J., on 55 crossings. The conclusions from these studies vary so widely that they suggest other studies needful on this important phase of traffic control. Ohio made a survey of its signals—427 electric signals on state highways, 90 per cent of them outside of cities of 5,000—looking toward greater highway safety.

TRAFFIC SIGNALS

One of the important pieces of traffic research completed is the monographic chart for computing time intervals between adjacent intersections on a progressive traffic signal system.

HIGHWAY CONSTRUCTION

Some good highway construction was completed during the year through relief labor. Notable are those at Austin, Tex., and in parts of New Jersey. Mason City, Ia. made a 3,000-foot pavement as a relief project using municipal scrip to pay the labor. A new type of protected highway is under construction in Westchester County, N. Y. Some twenty years ago "parkways" first appeared as protected roadways for special traffic, recreational or passenger. Such a protected highway for general traffic is so far nameless and unknown, the Westchester experiment being the leader in this field.

INSTITUTE OF TRAFFIC ENGINEERS

The Institute of Traffic Engineers which is now international, increased its membership during the year and also added to its educational program a monthly bulletin in addition to its monthly abstract of traffic literature, both book and magazine. These bulletins are on the reading tables of public libraries.

ELECTRIC LIGHT AND POWER

By G. F. Wittig

Statistical Editor, *Electrical World*

ENERGY OUTPUT, REVENUE AND SALES

Energy for electric light and power is sold by commercial companies and municipal systems in which there is an aggregate investment of $12,600,000,000. The output of these establishments during 1933 was 80,100,000,000 kw.-hrs., their revenue was $1,918,000,000 and they served 24,127,000 customers. Nearly five-sixths of this number used the energy for domestic purposes and the majority of the remainder were in the "commercial small light and power" group. About 600,000 were in the wholesale energy group consisting primarily of large plants using electrical energy for manufacturing purposes.

The installed capacity of the generators in the power plants was 34,145,000 kw., driven by engines having a combined rating of 48,160,000 hp. Of this total horsepower, 28 per cent is water power; most of the remainder is in steam turbines. 880,000 hp. is in internal combustion engines.

Compiled before final statistics for the year were available, the quantities here given are partly estimated but may be accepted as being substantially correct. They are quoted on the authority in part of the *Electrical World* and in part of the Edison Electric Institute. Census reports for 1932, to which reference is made in another part of this article, appeared too late to permit the making of the adjustments necessary to bring the two sets of statistics into exact harmony. The changes (in per cent) in 1933 referred to 1932 and based on comparable data have therefore been attached.

The difference between energy sales and total energy generated (plus a small amount purchased by electric light and power companies from sources outside of that industry) is due in most part to unavoidable losses in transmission and distribution.

REVENUE AND ENERGY SALES IN 1933

(Quantities in parentheses are changes in per cent compared with 1932)

Class of Service	Revenue (millions of dollars)	Energy (millions of kw.-hrs.)
Domestic........	657 (−1.8)	11,940 (− 0.4)
Small Commercial	500 (−5.5)	12,470 (− 4.0)
Large Commercial	470 (−1.2)	34,380 (+10.1)
Municipal and Miscellaneous..	109 (−4.4)	2,900 (− 1.5)
Electric Traction.	42 (−4.8)	4,640 (− 1.6)
Total.........	1,778 (−3.0)	66,330 (− 4.1)

COMPARISON OF CONSUMPTION WITH OTHER YEARS

The table of energy disposition makes evident the effect of curtailed industrial activity. Consumption by wholesale customers was less by nearly one-third in 1932 than in 1929. Abrupt gains in the early summer raised operations to a new plateau, completely devoid of any further upward slope, however, and resulted in a larger consumption in 1933. Of the three major groups, sales for domestic service alone continued to grow for several years after 1929. Apparently it was not until 1933 that the need for economy even in small things became sufficiently acute to check the rising use of electricity in the home. In contrast with changes in energy sales the year's revenue was smaller in each class of service than in 1932 and the total was the smallest since 1927. Rates in general decreased. The average for domestic service fell from 6.33 cents per kw.-hr. in 1929 to 5.50 cents in 1933. The average consumption per domestic customer increased, during the same interval, from 500 kw.-hrs. per year to 600.

DOMESTIC SERVICE

In 1930 there were twice as many customers receiving domestic service as in 1922. The number had increased by about 10,000,000 in eight years. In that brief period the urban home without electric light had become the rare exception. An analysis by population groups recently made by the Edison Electric Institute leads to the conclusion that at least 93 per cent of the families in communities of 1,000 or more people are thus served. Since 1930 there has been a net decrease. It was small, less than two per cent, but it broke in upon the previously uninterrupted growth. In domestic service it may be taken as evidence of the "doubling up" of families, leading to vacant dwellings and so to disconnections.

OUTPUT FROM WATER POWER AND FUEL

Of the total energy generated, 47,200,000,000 kw.-hrs. was produced from fuel and 32,900,000,000 kw.-hrs. from water power, the latter therefore constituting 41 per cent of the whole. This was an unusually large fraction. Of fuel used, coal was about 27,800,000 tons, oil 9,300,000 bbls. and natural gas 100 billion cubic feet. The first of these quantities was only two-thirds as large as in 1929, which means that the amount of coal burned was nearly 14,000,000 tons less in 1933 than in 1929. The rate of fuel consumption was equivalent to 1.48 lbs. of coal per kilowatt-hour generated. In 1920 the corresponding nation-wide average was 3 lbs. Technical progress has doubled the efficiency of utilization in a dozen years.

NEW POWER INSTALLATIONS

New power plant capacity that went into operation amounted to 350,000 kw., of which a little over one-fourth was in water power, according to a list compiled by the *Electrical World.* With some exceptions the additional equipment represents merely the completion of work started in a previous year. Most of it appears to have taken the place of machinery that had become obsolete. The net increase was only a third as large.

MUNICIPAL AND COMMERCIAL ESTABLISHMENTS

These statistics provide a measure for the first time in five years of the relative magnitudes of operations by commercial companies and by municipalities. Numerically the two groups are approximately equal; 1,627 of the former and 1,802 of the latter, 3,429 in all. In other respects they differ widely. Commercial establishments served 90.5 per cent of the customers, sold 94.3 per cent of the energy and received 93.5 per cent of the revenue from ultimate consumers. These ratios did not change to any notable extent from those of the 1927 census in which they were, respectively, 90.3, 95.4 and 93.2 per cent.

FINANCIAL CONDITIONS

Curtailment in New Investment.—Equipped with generating capacity 15 per cent greater than in 1929 while the load was much smaller, and in doubt about the interpretation of the securities act enacted by Congress, utility companies had little occasion to call for new investments by issuing securities. Financing, which a few years earlier had been measured in billions, dropped to the extraordinarily small total of $56,000,000. Most of this was for refunding maturing obligations. New capital was negligible.

Financial Stability. — Despite the depression electric light and power companies have been conspicuously successful in maintaining a sound financial standing. In making this statement the collapse of the great holding-company group known as the Insull properties has not been overlooked. That failure, which involved huge losses to security holders, resulted in the partial or complete disintegration of elements of the corporate structure comprising the Middle West Utilities Company and various other holding and subholding companies. But the underlying operating companies continued their service to the public and, with a very few exceptions, were not enmeshed in the financial tangle. Certain large groups continued to be held together under their holding-company receiverships. The few defaults of operating companies, which as listed in the *Electrical World* amounted to only $8,000,000, were apparently a reflection of troubles higher up in the corporate structure. For the rest, both the holding and the operating companies have successfully come through a difficult period. Many of them fully maintained or only moderately reduced their dividend rates.

Unfavorable Influences confronting the industry are the possibility of impairment of investments through Government competition, the lowering of revenue through forced reductions of rates for energy, the possibility of rising costs brought about by codes and the ever-mounting taxes which are already equal to two-thirds of wages and salaries, to one-fourth of the operating expenses and to 11 cents out of each dollar paid by consumers.

Security Prices were affected by these considerations as well as by current financial conditions. The average of 50 bond prices which had risen to 93 dropped to 83 by the end of the year, and stocks dropped to the 1932 minimum.

GOVERNMENT POWER PROJECTS

Tennessee Valley. — During the year work was inaugurated on several large projects by the National Government looking toward the development of power on a vast scale. The most elaborate is the one being carried on by the Tennessee Valley Authority. Work has been started at one site, the Norris Dam on Cove Creek, where there is to be an installation of 165,000 kilowatts. The plan contemplates other large developments on the Tennessee River and its tributaries.

Columbia River.—In the basin of the Columbia River two developments are under way, with a combined capacity of 1,000,000 kw.

Boulder Dam. — At Boulder Dam on the Colorado much progress has been made on the construction of the huge dam, where 1,400,000 kw. is to be installed by 1937. A first unit of 41,000 kw. is scheduled for 1935; four 82,500 kw. units are to follow. The transmission line to Los Angeles is designed for 270,000 volts and will use a hollow segmental conductor for the first time in this country. The present maximum is about 230,000 volts. A number of lines at that or a slightly lower voltage have been in operation for some time.

Competition Problems.—The areas adjacent to these developments already have electric service, and the question has arisen as to how the great amounts of energy to be generated by the Government-owned plants are to be absorbed. Fear is expressed that investments made in good faith in existing power systems will be seriously impaired by the competition. Since the securities are held not only by numerous individual investors but also by such corporate bodies of public interest as insurance companies and educational and other institutions the matter is one of wide-spread concern.

TECHNICAL PROGRESS

Probably the most striking innovation in power generation in recent years was the installation of a 10,000-kilowatt mercury-vapor turbine in Hartford, Conn. This unit has continued in commercial service, and during 1933 two others of twice its rating went into successful operation, one in Kearny, N. J., and one in Schenectady, N. Y. The advantage of using mercury vapor in conjunction with steam lies in the wide temperature range of the working fluids and the consequent utilization of the heat from the fuel to greater advantage than is possible with a steam turbine alone operating at ordinary steam pressures. The same problem has been attacked also by using steam at very high pressures and temperatures. Several installations working at 1,200 lbs. per square inch are now in successful operation. The economic objective is to strike the most favorable balance between the increase of investment and the value of the fuel saved.

CENTURY OF PROGRESS EXPOSITION LIGHTING

Spectacular effects were obtained in lighting the Century of Progress Exposition at Chicago by a combination of incandescent lamps, floodlighting and gaseous-conductor tubes. Many of the buildings were painted in brilliant colors, and it was a function of the illumination to bring these out. For a description of the methods used the reader is referred to the *Electrical World* of May 27 and July 15, 1933. At least 3,000 kw. of lighting equipment was installed by the Exposition, and exhibitors added to the outdoor lighting. More than 15,000 incandescent lamps ranging in size from 10 to 3,000 watts, 24 36-inch arc searchlights, 72 24-inch incandescent searchlights and thousands of feet of neon, mercury vapor and other gaseous tubes were employed. Unusual mobile color effects on a large scale were obtained by the gradual transition of light from tubes of one color to those of another. Including interiors, more than 40,000 feet of tubes were installed, the colors including red, blue, greenish, silver and gold.

HIGHWAY LIGHTING

Following experimental installations, made in Holland and England during 1932, for highway lighting by sodium lamps, a half-mile stretch of road ~~near~~ Schenectady, N. Y., was so lighted during the early summer of 1933. The light emanates from vapor of the metal sodium, traversed by an electric current. The color is almost a pure monochromatic yellow. Objects are made visible by contrasts in brightness, not by their color, which is distorted, and seeing is said to be made easy also by the absence of glare from the lamps. Difficult technical problems had to be overcome in developing the new lamps, which give about 2½ times as much light for the same electrical energy as incandescent lamps.

INTERCONNECTION PREVENTS DARKNESS

During a three-day tropical storm in August vital steam plants in Baltimore and Washington were flooded and became inoperative. The cities would have been completely without electric service had it not been possible to supply them with energy from water-power plants 40 or 50 miles distant, on the Susquehanna River, with which the local plants were interconnected by means of transmission lines. As a commentary on the proposals to tax the interstate transmission of energy—with the implied pressure on utility companies to avoid interstate connections as much as possible—it might

FINANCIAL REPORT ON ELECTRIC LIGHT AND POWER COMPANIES

(Millions of Dollars)

Class of Service	Total	Type of Establishment	
		Commercial	Municipal
REVENUE			
Farm	42.8	41.9	0.9
Domestic	649.8	585.0	64.8
Small Commercial	491.8	459.4	32.4
Large Commercial	483.4	475.7	7.7
Municipal Street Lighting	92.0	81.8	10.2
Street Railways	38.8	38.3	0.5
Electrified Railroads	7.0	7.0	....
Other	15.5	14.1	1.4
Total, ultimate consumers	1,821.1	1,703.2	117.9
Sales for resale	154.2	150.8	3.4
Revenue for elec. service	1,975.3	1,854.0	121.3
EXPENSES (Partial)			
Operating Expense	803.1	736.7	66.4
Uncollectible Bills	14.9	13.9	1.0
Taxes	205.2	203.9	1.3
Retirement Expense	154.0	142.6	11.4

be added that the waterpower plants mentioned are in Pennsylvania.

U. S. CENSUS STATISTICS

In the latter part of the year the U. S. Bureau of the Census began issuing preliminary reports on the results of the quinquennial census of electric light and power companies for 1932. From those reports the figures (*see* table p. 283) have been abstracted.

The balance of expenditures, not here listed in detail, went chiefly into capital charges such as interest, amortization of debt discount, retirement and dividends on capital stock.

ENERGY SALES

(in millions of kw.-hrs.)

Class of Service	Total	Type of Establishment	
		Commercial	Municipal
Farm	1,504	1,488	16
Domestic	11,790	10,411	1,379
Small Commercial	12,059	10,794	1,265
Large Commercial	32,380	31,931	449

SALARIES AND WAGES

Salaries and wages amounted to $323,874,746; commercial establishments paid $303,052,399 and municipal $20,822,347.

EMPLOYEES

Class of Employees	Total	Type of Establishment	
		Commercial	Municipal
Salaried	110.453	103,017	7,436
Wage-earners	134,120	122,540	11,580
Total	244,573	225,557	19,016

CUSTOMERS BY CLASS OF SERVICE

(Thousands)

Class of Service	Total	Type of Establishment	
		Commercial	Municipal
Farm	614	593	21
Domestic	19,286	17,338	1,948
Small Commercial	3,527	3,284	243
Large Commercial	379	365	14
Other	52	51	1
Total	23,858	21,631	2,227

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Water Works Assn., 29 W. 39th Street, New York City.

International Assn. of Fire Chiefs, Police Headquarters, Philadelphia.

National Electric Light Assn., 420 Lexington Ave., New York City.

National Parks Assn., 1512 H St., N. W., Washington, D. C.

National Public Service Corporation, 57 William Street, New York City.

Park Assn. of New York City, Inc., 122 E. 22nd St., New York City.

DIVISION IX

DEFENSE AND ARMAMENTS

MILITARY PROBLEMS OF THE UNITED STATES

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

CIVILIAN CONSERVATION CORPS

One of the most interesting and intricate problems of all times was presented to the War Department during the past year. On March 31, 1933, the establishment of a Civilian Conservation Corps was authorized. The aim of its creation was the immediate reduction of unemployment and privation throughout the country. As first planned, the Department of Labor was to select and certify recruits and the War Department to receive those accepted, issue clothing and equipment, and organize them into companies of approximately 200 men each. Thereafter, the Army, after having given the usual immunizing treatments to the men, was to transport each unit to the railhead nearest its particular forest project. From that point, the Departments of Agriculture and Interior were to take charge. Trained as it was in organization work, the Army experienced no difficulties with its part of the task. Not so, however, in other phases of the project, and it was soon apparent that the establishment and administration of hundreds of camps and cantonments could not be handled effectively by agencies not specifically trained and equipped for such work. Therefore, the Army, on April 10, was called upon to assume, under the general supervision of the Director of Emergency Conservation Work, complete and permanent control of the Civilian Conservation Corps project, excepting only the functions of selecting recruits and of supervising technical work in the forests.

The immediate problem was to assemble some 300,000 men—more than were enlisted during the Spanish-American War—place them in small camps, often in isolated regions, and make those camps healthful, wholesome places in which to maintain the men. This dictated the necessity of using a considerable number of officers to administer the camps. Junior grade Reserve Corps officers, as well as small contingents from the Navy and Marine Corps, were used to supplement the work of Regular Army officers. Early in May, the War Department showed conclusively that, unless existing instructions given it were changed, the President's objective could not be reached as speedily as was intended. The General Staff had ready a plan to speed up the work. This plan called for immediate approval of about 300 additional work projects, the transfer of necessary funds to the War Department, the removal of delaying restrictions applying to the purchase of supplies, and the issuance to the Labor Department of necessary instructions concerning selection of applicants. The plan was immediately approved, and the Army moved ahead at full speed. Service school graduations were advanced to earlier dates in order to secure Regular Army officers and many other commissioned officers were withdrawn from normal duties. On July 1, seven weeks after approval of the Army's operational plan, the assembly of the Conservation Corps stood complete. Its units had been transported, often over great distances, to 1,315 camps, scattered over the country. The normal set-up for a camp was 2 Regular officers, 1 Reserve officer, 4 Regular Army enlisted men, and about 200 Civilian Conservation Corps men. A total of 3,109 Regular Army officers, 532 officers of the Regular Navy and Marine Corps, and 1,774 Reserve officers were on duty in the camps. Although administered by the military, the Corps constituted a purely civil organization in which every phase of the Army's responsibility was discharged expeditiously, economically, and efficiently.

The Army has both profited and suffered because of its connection with the Civilian Conservation Corps. Junior officers gained valuable training in mobilizing men, and in leadership and procurement services they were given opportunity to test their powers of expansion to meet an emergency. However, advantages of this character were outweighed by disadvantages of serious consequence, if the Regular Army's connection with the Conservation Corps was to be prolonged. To take 3,000 Regular Army officers from their regular assignments was to curtail normal army activities very sharply. It meant that the education of the Regular in the service schools suffered, that instruction in the National Guard, the Organized Reserves, and the Reserve Officers' Training Corps was limited. Normally, about 1,600 Regular officers are assigned on civilian instruction duty; to meet the demands of the Civilian Conservation Corps this number was reduced to 700. In normal peace times the 12,000 officers available to the Regular Army have proved insufficient to man combat elements fully. Because of officering the Conservation Corps, this situation was greatly aggravated. Often there was but one officer to an entire battalion of troops, and his normal help, the experienced non-commissioned officer, was also taken into the work of the Conservation Corps. To correct situations of this character and to enable the Regular Army to resume its training, which was virtually brought to a standstill in the United States proper, the War Department recommended the assignment of additional Reserve Officers to duty with the Conservation Corps. The advantages of such a move are too obvious to require further comment.

THE FOUR-ARMY ORGANIZATION

The War Department's agencies for executing the details of mobilization plans and for supervision of normal peace-time activities within its scope are the nine corps area commands. However, they are territorial and administrative rather than tactical commands. The problem of the Department is, therefore, to establish some organizational framework whereby troops, mobilized in an emergency, can be assembled, maneuvered, and operated as a unit against an enemy. The four-army plan is designed to answer these demands. In this plan, or organization, every unit is assigned to a definite place in a larger tactical organization, and each is provided with a commander and the principal elements of this staff. The number of armies is governed by the necessity of accounting for each of the natural defensive regions of the United States, of which there are four. The following are the allocations: *First Army:* 1st, 2d, and 3d Corps Areas; its mission deals with the North Atlantic and northeastern frontier. *Second Army:* 5th and 6th Corps Areas; its mission deals with the strategical area of the Great Lakes and the central northern frontier. *Third Army:* 4th and 8th Corps Areas; its mission deals with the region of the Gulf of Mexico and the southern frontier. *Fourth Army:* 7th and 9th Corps Areas; its mission deals with the Pacific Coast.

Heretofore, the War Department has not been linked to fighting elements by the network of command and staff essential to unified tactical functioning of an American Army. The existence of an adequate system of command and staff as set up in the four-army plan will insure that immediately available strength is equal to numerical strength. The Chief of Staff, in war, can center his attention upon the vital functions of operating and commanding field forces. Such has not been the case in the past, for the War Department has always been forced to relinquish to an independent field commander its functions in the control of operations while the Department itself struggled with the mass of detail work relating to organization, administration, supply, and other requirements of mobilization.

Until interrupted by the demands of the Civilian Conservation Corps., the four-army plan was enjoying an encouraging testing period. When this problem can again be considered normally, new mobilization plans lately evolved by the Department, will be tried for adaptation to the general scheme.

APPROPRIATIONS

The problem of maintaining an Army, always a serious one, was further complicated by the serious economic situation of the past year which dictated severe cuts in military appropriations. For the fiscal year 1932 military appropriations were $334,764,748; for the fiscal year 1934, they were finally adjusted at $224,964,758. This staggering reduction of $100,000,000 presented the War Department with an onerous problem. How maintain the structural framework? How conduct necessary training so indispensable to orderly mobilization in emergency? Sacrifices of a drastic nature were made. Obsolete and inefficient equipment was kept in service; much technical research and development work was suspended; needed material and ammunition were not procured. As a nation we skated on thin ice, hoping that no grave emergency might arise wherein prompt and effective employment of our Army would be necessary. In connection with the public-works program, the War Department was required to submit a list of its essential needs in various types of material. This list, which does not include a staggering total needed for establishing and maintaining ammunition reserves, shows how badly the Army wants for necessities at present:

Army housing including Hawaii, Panama, and National Guard construction	$135,000,000
Mechanization	23,000,000
Motorization, general	39,000,000
Anti-aircraft equipment, including motorization	33,000,000
Modernization and motorization of the Field Artillery	35,000,000
Aircraft	39,000,000
Total	$304,000,000

This total, excepting from it the amount shown for construction, represents the extent to which the Army is deficient in modern weapons and equipment. It shows the cumulative result of years of failure to provide adequately, by appropriation, for procurement and replacement. In the field of mechanization we have spent $2,000,000 since 1920; England appropriated $20,000,000 for mechanization projects within the space of four years. A drop below acceptable standards, as indicated in this instance, which is not the only one available for presentation, means the incurring of additional risks to the Nation's safety.

PROMOTION OF ARMY OFFICERS

This problem, one of the most vexing of solution in the Army, is still the subject of proposed, corrective legislation. Up to and including the grade of colonel, Army promotions, except in the Medical and Chaplains Corps, are based exclusively on seniority in length of commissioned service. Fixed numbers are maintained in each grade and vacancies are filled by promoting the senior officer from the grade next below. Lacking acceleration in the promotion rate, stagnation in promotion has developed and with it, dissatisfaction. Any successful solution of this problem, to quote the Chief of Staff, "must offer reasonable advancement to every officer retained on the active list; must maintain a satisfactory balance among grades; must incur no large increase in cost to the Government; must be accepted by the large majority of officers as a system fair to all." A bill to accomplish these aims was submitted to the Congress almost two years ago.

PAY

Pay of officers and enlisted men in the Army, long in need of revision upwards, suffered a further set-back last year in the application of the 15 per cent reduction applied to the salaries of all Government employees by the operation of the so-called Economy Act. The response within the Army was rather philosophical in recognition of humanity's greater need. One serious problem, however, did arise and from it came the recommendation of the Chief of Staff that pay of enlisted men should be freed from the imposition of the 15 per cent cut. The enlisted private's base of $21 was cut to $17.85, a drastic slash in an amount never large. Then, when the Civilian Conservation Corps work was imposed upon the Army, these same enlisted men were put to work in helping to handle camps wherein the untrained men recruited were receiving $30 a month. The difference was too acute to escape notice and General MacArthur's recommendation was timely if desertion rates were to be kept down and the sterling efforts of the enlisted men were to be somewhat adequately recognized. However, pay adjustments now are dependent on two factors, (1) national recovery and, (2) the will of Congress.

MOTORIZATION

In the Army, the term motorization covers the utilization of motor vehicles by military units for transportation purposes. The situation in this field of our Army effort is far from good. Most of the present Army motor equipment was built during the World War and is, consequently, obsolete as well as largely worn out. The Regular Army needs, if general motorization is to be accomplished, a total of 9,385 trucks and 279 tractors. The National Guard's aggregate requirements are about 19,500. Present appropriations for motorization within the Army only serve to accentuate the fact that, as regards the world trend toward efficient motorization of Army units, we have not only failed to keep pace but have retrogressed.

MECHANIZATION

This term in the Army pertains more particularly to the use of motor vehicles as weapons on the battlefield. Here again the problem does not lie in any lack of knowledge of what is required for the Army but in the securing of sufficient appropriations from Congress to obtain the necessary equipment. Eliminating from consideration the dozen machines produced in the past few years, every tank in the Army to-day is of World-War manufacture. Against a modern unit on the battlefield they would prove useless. Their greatest cross-country speed is not over five miles an hour whereas eighteen to twenty is mandatory and a greater speed most desirable. In this field, the Army does not seek to accumulate numerous and expensive experimental tanks and armored cars. Instead, there is sought sufficient appropriation to equip two infantry regiments and one cavalry brigade with the most modern types of mechanized fighting machines. Such equipment would make possible, (1) through tactical tests from which applicable training methods could be developed and, (2) the possession of a limited number of organizations suitably trained and equipped to conduct mechanized warfare in sudden emergency.

TRAINING

The problem of sustained, efficient training in the Army is closely knit to the welfare of the Nation. General MacArthur, in his annual report, stated, ". . . national defense still remains the first duty of a sovereign power." That defense is only as effective as the state of proficiency attained by its armed forces. Proficiency in arms is predicated on thorough grounding in the principles of modern warfare and unremitting training in the tactical employment of military units thoroughly equipped with modern weapons. A strong corps of expertly qualified Regular Army officers is the backbone of any efficient military training system. Officers must be able to analyze and interpret the lessons of history and evaluate them in their application to the needs of modern warfare. Few people understand the wide field of professional attainments covered by the efficient Regular Army officer. He must be ready to serve in foreign garrisons or in permanently manned harbor defenses in our country; he must serve expertly in the technical services of his profession; he must understand the procurement of munitions, equipment, and subsistence for his troops; he must operate schools to train other officers and enlisted men; and, finally, he must be able to lead his men into battle and do it intelligently that lives be not sacrificed needlessly. Without trained officers, truly armies are but mobs. Four times in the nineteenth century we went to war and incurred needless sacrifices, sacrifices which were attributable to the fact that units went into action under officers who were hastily and imperfectly trained. We did the same thing in 1917. European commanders stood amazed at the courage of our soldiers on the Western Front, while they wept at the costly sacrifices we made because of the absence of sufficiently skilled leadership in the smaller units. Any move that threatens to curtail military training invites human slaughter, for, contrary to the views of certain uninformed or misinformed theorists, thoroughly trained soldiers and officers do not grow like mushrooms overnight.

Regular Army personnel are on duty constantly in the service of the Government. It is imperative, therefore, that the War Department keep the Regular Army units well organized, thoroughly equipped, strategically located and highly trained. Under present conditions, this last objective is seriously hampered of accomplishment. Theoretical training has been satisfactory but in field training the situation is not encouraging. Because of drastically reduced strength of Regular units, field exercises, which should be on a sufficiently large scale to simulate actual battlefield situations, have not been possible. Thus Regular and Reserve officers are robbed of all but the most skeletonized training in war maneuvers.

The Chief of Staff, in his annual report states: ''Our minimum requirements in the fields of personnel and training include theoretical instruction for all components of the Army and for the Reserve Officers' Training Corps and the Citizens' Military Training Camps on the scale of the 1932 program; an Officers' Reserve Corps of about 120,000 with 2 weeks' active duty training for 30,000 annually; maintenance of the National Guard at least at existing strength with 48 armory drills yearly and 2 weeks' field training in as large formations as practicable; target practice and field exercises, to include maneuvers by large commands, for all tactical units of the Regular Army, and an enlisted strength of 165,000.''

INSULAR AFFAIRS

Matters before the Congress affecting the interests of the Philippine Islands and Puerto Rico were the concern of the Bureau of Insular Affairs during the year. The measure of major importance with reference to the Philippines is Public Act No. 311, ''To enable the people of the Philippine Islands to adopt a constitution and form a government for the Philippine Islands, to provide for the indefence of the same, and for other purposes.'' enacted by the Seventy-second Congress Jan. 17, 1933, over President Hoover's veto.

Relief laws enacted by the first session of the 73d Congress have raised some interesting questions with relation to the extent of their applicability to the Philippines and Puerto Rico. In general, laws of the United States are in effect in Puerto Rico except where local conditions render them inapplicable. In the Philippines, on the other hand, laws of the United States are not in effect unless specifically made so. While Congress did not directly extend the various relief laws to the Philippines, fiscal and trade relations between the Islands and the United States are such that the Philippines can hardly fail to be affected by the operation of the various laws within the United States.

ARCHIVES AND RECORDS

Continued progress was made during the year in record work within the War Department. In the Office of the Adjutant General, thousands of clinical and medical records were sorted and made part of the officers' and soldiers' personal record files. Likewise, thousands of worthless papers have been destroyed, thereby facilitating search work in the active files. In the field of military unit records, the Historical Section of the Army War College has examined and indexed available records of our units that fought in the World War. This Section is now engaged in collating the records so indexed with a view to their subsequent assembly for publication.

The National Archives Building is rapidly nearing completion. When finished, it will embody the best features of archival depositaries as evidenced by European and American buildings of similar character. It will terminate the ever-present danger of destruction by fire of priceless documents, imperfectly housed at present.

ORGANIZATION OF THE ARMY

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

THE WAR DEPARTMENT

The War Department, the managing agency of the Army of the United States, is presided over by the Secretary of War, a civilian answerable directly to the President. The Secretary (George H. Dern) is assisted by the Chief of Staff (General Douglas MacArthur) who supervises the military functions and by the Assistant Secretary of War (Harry H. Woodring). Under this combined direction operate the General Staff and the various arms and branches of the Army. The chiefs of these several arms and branches transmit advice to the Secretary of War through the Chief of Staff and the Deputy Chief of Staff (Major General Hugh A. Drum).

THE GENERAL STAFF

Composition and Duties.—The General Staff is composed of officers who are selected from all arms and branches of the service. By extended training and specialized schooling, these officers are developed professionally to comprehend all phases of the general problems submitted to them for study. From these studies, they are required to present to their superiors broad and unbiased conclusions for the best interests of the service. On the other hand, the chiefs of the combatant branches and the supply and administrative departments are specialists whose forces are trained to give technical and specific advice to the Secretary of War, through the Chief of Staff, concerning particular conditions confronted. None of the officers of the General Staff or heads of arms or departments enjoys the right to command. The duties of each are advisory, supervisory, or administrative. The chain of command is direct from the President of the United States to the Corps Area Commanders in manipulating the Army of the United States. The Secretary of War, however, may give orders in the name of the President to the nine areas of control in the United States proper and to the three other areas beyond the continental limits.

Command Divisions.—The General Staff consists of five divisions composed of officers of the Regular Army, National Guard, and Organized Reserves. The G-1 Division (Brig. Gen. Andrew Moses, Assistant Chief of Staff, G-1) is concerned with personnel, the man-power of the Army and nation. The G-2 Division (Col. Alfred T. Smith) is concerned with world-wide information, collecting, evaluating, and employing it for the good of the service. The G-3 Division (Brig. Gen. John H. Hughes, Assistant Chief of Staff, G-3) is concerned with the operations and training of the Army. The G-4 Division (Maj. Gen. Robert E. Callan, Assistant Chief of Staff, G-4) is concerned with the housing and maintenance of the Army. The War Plans Division (Brig. Gen. Charles E. Kilbourne, Assistant Chief of Staff, W.P.D.) is concerned with plans for adequate national defense, both at home and in our island possessions.

ADVISORY BODIES

Combatant.—The chiefs and officers of the combatant arms and the heads of departments and services also function as advisors to the Secretary. The combatant branches, with their heads, are: Infantry, Maj. Gen. Edward Croft; Cavalry, Maj. Gen. Guy V. Henry; Field Artillery, Maj. Gen. Harry G. Bishop; Coast Artillery, Maj. Gen. John W. Gulick; Air Corps, Maj. Gen. Benjamin D. Foulois; Engineer Corps, Maj. Gen. Edward M. Markham; Signal Corps, Maj. Gen. Irving J. Carr.

Non-combatants.—The non-combatant branches, with their heads, are: The Adjutant General's Department, Maj. Gen. James F. McKinley; The Inspector General's Department, Maj. Gen. John F. Preston; The Judge Advocate General's Department, Maj. Gen. Arthur W. Brown; The Quartermaster Corps, Maj. Gen. John L. DeWitt; The Finance Department, Maj. Gen. Frederick W. Coleman; The Medical Department, Maj. Gen. Robert U. Patterson; The Ordnance Department, Maj. Gen. Samuel Hof; The Chemical Warfare Service, Maj. Gen. Claude E. Brigham; The Bureau of Insular Affairs, Brig. Gen. Creed F. Cox, and the National Guard Bureau*, Maj. Gen. George E. Leach.

CORPS AREAS AND DEPARTMENTS

For command and control, the United States and its possessions are divided into Corps Areas and Departments as follows: First Corps Area, including Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, commanded by Maj. Gen. Fox Conner; Second Corps Area, including New York, New Jersey, Delaware, and Puerto Rico, by Maj. Gen. Dennis E. Nolan; Third Corps Area, including Pennsylvania, Maryland, Virginia, and District of Columbia, by Maj. Gen. Paul B. Malone; Fourth Corps Area, including North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, and Louisiana, by Maj. Gen. Edward L. King; Fifth Corps Area, including Ohio, West Virginia, Indiana, and Kentucky, by Maj. Gen. George V. H. Moseley; Sixth Corps Area, including Illinois, Michigan, Wisconsin, Jefferson Barracks and Arcadia Target Range in Missouri, by Maj. Gen. Preston Brown; Seventh Corps Area, including Missouri (Arcadia Range and Jefferson Barracks excepted), Kansas, Arkansas, Iowa, Nebraska, Minnesota, North Dakota, and South Dakota, by Maj. Gen. Frank R. McCoy; Eighth Corps Area, including Texas, Oklahoma, Colorado, New Mexico, Arizona, and Fort Francis E. Warren in Wyoming, by Maj. Gen. Johnson Hagood; Ninth Corps Area, including Washington, Oregon, Idaho, Montana, Utah, Nevada, California, Alaska, and Wyoming (except Ft. Warren), by Maj. Gen. Malin Craig; The Hawaiian Department, by Maj. Gen. Briant H. Wells; the Philippine Department, by Maj. Gen. Frank Parker; The Panama Canal Department, by Maj. Gen. Harold B. Fiske. These areas and departments are subdivided into tactical divisions and brigades.

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* Although the National Guard is, of course, a combatant organization, the National Guard Bureau is here properly listed under the heading "Non-combatant."

TABLE SHOWING THE STRENGTH OF THE REGULAR ARMY OF THE UNITED STATES JUNE 30, 1932, AND JUNE 30, 1933, AND LOSSES DURING THE FISCAL YEAR INTERVENING

Arm of Service	Strength June 30, 1932		Strength June 30, 1933		Losses										
					Officers										
											Died				
	Officers	Enlisted men	Officers	Enlisted men	Retired	Resigned	Discharged[1]	Dismissed	Dropped, absent without leave	Relieved from active duty	Of disease	Of accident	Suicide	Homicide	Total
General officers of the line	67		67		4						1				5
General Staff Corps	226		227								3				3
Adjutant General's Department	90		87		2										2
Inspector General's Department	38		40												
Judge Advocate General's Department	92		88		1							2	1		4
Quartermaster Corps	710	7,415	708	7,448	27	1		1			1			1	31
Medical Department	1,211	6,615	1,228	6,521	25	3			1		5		1		35
Finance Department	120	380	119	371	10										10
Corps of Engineers	421	4,125	449	4,213	2										2
Ordnance Department	271	2,180	270	2,065	4										4
Signal Corps	201	2,473	206	2,514	2										2
Chemical Warfare Service	73	425	77	413											
Bureau of Insular Affairs	4		4												
Chaplains	119		120		2										2
Professors, U. S. Military Academy	8		8												
Cavalry	581	7,235	572	7,695	9	1	1				1		1		13
Field Artillery	968	13,659	974	14,258	6	1					3	1			11
Coast Artillery Corps	713	12,284	728	12,160	10			1			1		1		13
Infantry	2,260	37,913	2,348	39,049	33	6	2	4			3		4	1	53
Air Corps	1,281	13,369	1,320	13,497	4	2		1			2	7	1		17
Detached list	2,654	5,344	2,587	5,186	44	1		1			10				56
Total, less Philippine Scouts	12,108	113,417	12,227	115,390	185	15	3	8	1		30	10	9	2	263

Philippine Scouts:															
Judge Advocate General's Department	1		1												
Quartermaster Corps	13	434	14	433											
Medical Department		312		311											
Finance Department		6		6											
Corps of Engineers	5	324	5	321											
Ordnance Department		49		47											
Signal Corps	2	126	2	126											
Cavalry	3	570	3	562											
Field Artillery	7	985	7	984											
Coast Artillery Corps	9	1,291	9	1,271											
Infantry	31	2,375	27	2,337	3										3
Air Corps	1		2												
Total	72	6,472	70	6,398	3										3
Grand total	12,180	119,889	12,297	121,788	188	15	3	8	1		30	10	9	2	266
Warrant officers:															
Army mine-planter service	40		39												
Band leaders	89		86												
Others	844		801												
Total	973		926												
Retired, on active duty:															
Regular Army	122	24	4							120					120
Philippine Scouts	12									12					12
Total	134	24	4							132					132
Aggregate	13,287	119,913	13,227	121,788	188	15	3	8	1	132	30	10	9	2	398

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[1] Includes one (1) honorably discharged.

Arm of Service	Losses—Continued																			
	Warrant Officers					Enlisted Men														Enlisted men returned from desertion
			Died					Discharged				Died								
	Retired	Resigned	Of disease	Suicide	Total	Retired	Relieved from active duty	Expiration of service	Disability	By sentence of general court-martial	Other causes	Of disease	Of accident	Drowned	Suicide	Homicide	Deserted	Dropped	Total	
General officers of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
General Staff Corps	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Adjutant General's Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Inspector General's Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Judge Advocate General's Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Quartermaster Corps	...	...	...	...	...	55	...	2,217	70	69	672	16	17	...	5	1	128	15	3,265	74
Medical Department	...	...	...	...	...	22	...	1,844	112	52	670	13	8	...	3	1	194	17	2,936	112
Finance Department	...	...	...	...	...	2	...	102	4	...	8	1	...	...	...	...	1	...	118	...
Corps of Engineers	...	...	...	...	...	12	...	1,208	80	29	442	9	4	...	...	1	115	9	1,909	68
Ordnance Department	...	...	...	...	...	24	...	516	25	12	168	3	1	...	5	...	29	2	785	14
Signal Corps	...	...	...	...	...	4	...	702	24	7	225	4	1	1	1	...	35	8	1,012	25
Chemical Warfare Service	...	...	...	...	...	1	...	81	5	5	67	1	1	3	...	...	10	...	174	3
Bureau of Insular Affairs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chaplains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Professors, U. S. Military Academy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cavalry	...	...	...	...	...	43	...	2,201	55	71	386	13	12	1	5	6	331	30	3,154	179
Field Artillery	...	...	...	...	...	26	...	3,756	166	131	1,382	25	14	2	5	2	547	71	6,127	285
Coast Artillery Corps	...	...	...	...	...	67	...	2,564	236	75	2,151	26	12	2	4	1	191	18	5,347	100
Infantry	...	...	...	...	...	110	...	10,993	515	238	4,544	85	37	8	18	7	1,173	149	17,877	603
Air Corps	...	...	...	...	...	26	...	3,849	106	52	1,637	29	34	5	3	3	201	23	5,968	107
Detached list	...	...	...	...	...	76	...	1,423	42	14	183	10	2	1	5	...	63	4	1,823	31
Total, less Philippine Scouts	...	...	...	...	...	468	...	31,456	1,440	755	12,535	235	143	23	54	22	3,018	346	50,495	1,601

Philippine Scouts:																				
Judge Advocate General's Department																				
Quartermaster Corps								60	5	1	6	1							73	
Medical Department								46	4		1								51	
Finance Department								1											1	
Corps of Engineers								44	4	1	5	1							55	
Ordnance Department								9	1										10	
Signal Corps								15	1	1	1						1		19	1
Cavalry								97	13	2	1	1			1				115	
Field Artillery								233	10		5	1							249	
Coast Artillery Corps								218	13		3	4	1		1				239	
Infantry								353	38		9	10	1						411	1
Air Corps																				
Total								1,076	89	5	31	18	2		1		1		1,223	2
Grand total						468		32,532	1,529	760	12,566	253	145	23	55	22	3,019	346	51,718	1,603
Warrant officers:																				
Army mine-planter service	2	1			3															
Band leaders	2		1		3															
Others	36	1	6	1	44															
Total	40	2	7	1	50															
Retired, on active duty:																				
Regular Army							24												24	
Philippine Scouts																				
Total							24												24	
Aggregate	40	2	7	1	50	468	24	32,532	1,529	760	12,566	253	145	23	55	22	3,019	346	51,742	1,603

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[1] Includes one (1) honorably discharged.

ARMY STRENGTH

The strength of the Army of the United States on June 30, 1933, was: Organized Reserves, 133,485 officers (including 14,000 officers and enlisted men in the National Guard who held commissions in both the National Guard and the Reserve Corps) and 5,028 enlisted men; National Guard, 13,364 officers, 205 warrant officers, and 172,356 enlisted men. Regular Army, 12,301 officers (including 70 Philippine Scouts and 4 Regular Army Retired, who were on active duty); 926 warrant officers, and 121,788 enlisted men (including 6,398 Philippine Scouts).

TABLE SHOWING THE STRENGTH OF THE REGULAR ARMY, BY CORPS AREAS.

Corps Area, Department, or Country	July, 1932			June, 1933		
	Officers	Warrant Officers	Enlisted Men	Officers	Warrant Officers	Enlisted Men
First Corps Area	462	58	4,030	464	58	4,003
Second Corps Area[1]	1,182	110	11,080	1,186	100	11,401
Third Corps Area	2,018	127	11,281	1,855	120	11,445
Fourth Corps Area	1,238	79	10,646	1,144	72	11,271
Fifth Corps Area	586	66	3,627	564	60	3,960
Sixth Corps Area	594	58	5,000	597	51	5,124
Seventh Corps Area	982	61	6,861	954	58	7,259
Eighth Corps Area	1,844	132	19,508	1,755	125	19,906
Ninth Corps Area[2]	1,166	119	12,367	1,106	118	11,229
Total in continental United States	10,072	810	84,400	9,625	762	85,598
Hawaiian Department	752	49	13,097	776	54	13,898
Panama Canal Department[3]	415	39	9,410	474	41	9,236
Alaska	10	1	303	12	....	300
Puerto Rico	56	4	932	59	6	880
Philippine Department:						
Regular Army	531	60	4,285	557	61	4,364
Philippine Scouts[4]	60	....	6,476	60	....	6,398
China	45	2	710	47	2	709
Japan	....	1	....	....	....	....
Europe[5]	25	1	....	14	....	....
Miscellaneous[6]	327	....	578	677	....	405
Grand Total[7]	12,293	967	120,191	12,301	926	121,788

[1] Excludes Puerto Rico.
[2] Excludes Alaska.
[3] Includes Panama civil government.
[4] Excludes officers of the Philippine Scouts attending general and special service schools in continental United States.
[5] Includes American Graves Registration Service and escorts of gold-star mothers and widows visiting American cemeteries in Europe.
[6] Includes military attaches, personnel on leave and en route to and from oversea garrisons.
[7] Includes personnel of the retired list on active duty.

ACCOMPLISHMENTS OF ARMY PERSONNEL

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

INFANTRY

Organization.—Infantry organization is in a highly unsettled state owing to the possible effects which motorization and developments in weapons may have upon basic groupings of leaders and men. As regards organization there are two schools of thought, one which holds the belief that our battalions are too complicated to be handled efficiently by one commander and his staff, the other which defines the battalion as the principal attack unit in which there should be combined all Infantry weapons with the possible exception of tanks.

Weapons. — About eighty Garand semi-automatic shoulder rifles, caliber .30 are nearing completion at Springfield Arsenal and will soon be available for testing. This rifle fires from a fool-proof clip containing 8 cartridges, and from 40 to 50 aimed shots per minute can be discharged. There is on hand a tremendous quantity of ammunition suitable for use in this weapon. By equipping the Browning automatic rifle with a bipod, the fire value of this weapon has been increased 2½ times, making it a reasonably effective light machine gun. At Watervliet Arsenal, there are under construction 18 Stokes-Brandt 81 mm. mortars having a range of from 230 to 3,280 yards. The .50 caliber Browning machine gun, air-cooled, has been recommended to the Infantry by the Chief of Cavalry, both as tank armament and as an anti-tank weapon. Armor-piercing bullets fired from this weapon at 500 yards, normal impact, penetrate .6 inch of armor. A satisfactory machine gun designed to fire .22 caliber ammunition has been developed for training purposes. It may be used on indoor ranges and permits more training at less cost than any other rapid firing weapon now available.

Tanks. — The Infantry now has three of the T 3 Christie tanks, and five more are nearing completion. The specifications of this tank are: speed on wheels about 40 miles per hour; on track about 30 miles; weight, about 15 tons; armor proof against .30 caliber armor-piercing ammunition; crew, 4 men; armament, one 37 mm. gun and five .30 caliber machine guns; cruising radius about 150 miles. A light tank T 2 is under construction by the Ordnance Department and much is expected of it. Both the Christie and the light tank will be equipped with radio having a range of from 12 to 40 miles.

ENGINEER CORPS

Mississippi River Flood Control.—Five and a half years after approval of the law providing for flood control of the alluvial valley of the Mississippi finds 75 per cent of the work completed with an expenditure of $228,000,000. Of the estimated 650,000,000 cubic yards of earth required to be moved, over 364,000,000 cubic yards have been placed in the levees. To date, including repairs and replacements, about 450,000 linear feet of revetments have been placed, and 170,000 linear feet of dikes have been constructed. Earth yardage placed already exceeds that excavated in building the Panama Canal. The Birds Point—New Madrid Floodway has been completed. The Bonnet Carre spillway structure is completed and the floodway is practically completed.

Mapping.—The 29th Engineers is the chief map-making organization of the Army. By coöperative agreement with the Department of the Interior, duplication in mapping is avoided. During the year, 1,100 square miles of country in Maine were surveyed; 450 square miles of area adjacent to New York City were covered; reconnaissance surveys for maneuvers were made of two quadrangles in vicinity of Camp Knox, and several special military maps were made of military reservations, together with boundary surveys.

Study and Survey of Rivers.—The Engineer Corps is making an extensive inventory of the potential resources of the principal rivers. More than 100 reports have been completed and the work, when finished, will reveal the possibilities of rivers that are now navigable or may be made navigable by improvement.

Strength.—The Corps strength at the end of the fiscal year was 591 officers and 4,534 enlisted men. Four officers of the Corps served the civil government of the District of Columbia; one was assigned to the American Battle Monuments Commission, and three were detailed to the Panama Canal Zone civil government, one serving as Governor of the Zone.

CAVALRY

Mechanized Units.—The 1st Cavalry at Fort Knox, is developing the tactics and technique of mechanized cavalry. It has received about one-third of its combat vehicles but the remainder are scheduled for early delivery. Mechanization of the 4th Cavalry, the other unit of the 7th Cavalry Brigade mechanized, awaits provision of the necessary funds.

Experimentation.—At Fort Riley, Kan., the 2d Cavalry is used for experimentation with variations in prescribed regimental organization. The salient features of this experimentation are: (a) substitution of light motor trucks for mule-drawn escort wagons for supply purposes, (b) the incorporation and location within a regiment of .50 caliber machine guns for defense against mechanized vehicles and, (c) the inclusion of scout cars as part of a Cavalry regiment to increase reconnaissance range and speed.

Maneuvers. — A demonstration of the possibilities of motor transport was concluded at El Paso in August when a squadron of the 7th Cavalry and attached troops returned to Fort Bliss from a 630-mile march accomplished in ten days through the desert country of the Big Bend. Men, all supplies, and horses were transported in trucks and trailers. The expedition was a thoroughly complete unit, each man being equipped with a rifle and pistol in addition to the complement of machine guns of various calibers and a .75-millimeter field piece mounted for firing. The column on the march, stretching out for a mile and a half, was in constant touch with its commanding officer, Maj. John A. Robertson, through radio messages and radio telephone. Longer range radio communication was also maintained with Fort Bliss. The 23 trucks and four-wheel trailers carried 200 men and 180 horses over the rough terrain, much of it without roads. The round-trip journey between El Paso and Terlingua was made in less than half the time that would have been consumed by cavalry. The column was preceded 20 miles ahead by four armored cars with their supply trucks. The cavalry horses were carried in the 36-foot trailers, eight mounts in each one. On the outward march the column averaged 8 miles an hour which was increased to 10 miles an hour on the return trip. The trucks were equipped with war-time type, four-cylinder Liberty motors, climbing grades as high as 12 per cent with their heavy loads.

FIELD ARTILLERY

Material and Equipment. — The Field Artillery Board completed its test of a truck-drawn battery of 75 mm. guns. Trucks used were ordinary 1½ ton types and the guns used were the French 75's modified for towing at high speed by utilizing pneumatic tires in place of standard wooden wheels. The feasibility of replacing horses in light artillery by motors was brought out in these tests, but further development is dependent upon sufficient appropriations to guarantee the procurement of replacements, spare parts, gasoline, and lubricants.

Awards. — The Knox Trophy, awarded annually by the Sons of the Revolution in Massachusetts for the most efficient Regular Army battery, was won by Battery B, 11th Field Artillery, at Schofield Barracks, Hawaii.

Maneuvers. — In February, a 75 mm. gun battery, pneumatic-tired, equipped throughout with light commercial trucks and station wagons, made a march from Fort Bragg, N. C., to Fort Ethan Allen, Vt., where it underwent a severe test, exposed to winter conditions. At the termination of this test, it returned to Fort Bragg. The mileage registered was 2,156. The ability of the trucks, with suitable gear reductions and traction devices, to negotiate the rough ice and snow-covered terrain in Vermont, has had considerable influence in extending this type of Field Artillery motorization.

COAST ARTILLERY CORPS

Organization. — In continental United States, the bulk of seacoast artillery personnel has been concentrated in six active harbor defences. The Corps' missions are (1) the attack of enemy naval vessels by means of artillery fire and submarine mines and, (2) the attack of enemy aircraft by means of fire from the ground. To accomplish these, the Corps is organized into Harbor Defense, Tractor-drawn, Railway, and Anti-aircraft Artillery units.

Maneuvers. — Joint Anti-aircraft Artillery-Air Corps exercises were held at Fort Knox, Ky., to test the organization, tactics and material of the Anti-aircraft Artillery and of the Air Corps.

Plans and Projects. — During the year, revised Harbor Defense Projects were completed for all the harbor defenses in continental United States. They provide for the modernization of armament and equipment with a view to providing a more efficient defense for important harbors and ports.

Material.—During the year a new instrument was devised. It is known as a seacoast director and is for the purpose of determining the data for the proper pointing of seacoast guns in firing on naval targets. Tests recently conducted indicate that this instrument is more satisfactory in every way and is cheaper to manufacture than any other instrument so far devised.

SIGNAL CORPS

Procurement Planning.—Coöperating with the Wire Association, a preliminary basic survey of all active wire fabricating facilities in the United States was completed. Production of mica was also the subject of study during the year in order to assure an adequate supply in time of emergency.

Photographic Service.—Improved by the acquisition of a photographic truck, provided with equipment for recording battle sounds and pictures in the field, this service produced two sound training films during the year. In addition, eight other film subjects were completed.

Meteorological Service.—The Signal Corps operates 32 meteorological stations in the United States, two in Hawaii, one in Panama, and one in the Philippines. These stations furnish the Air Corps with reports of weather conditions, both surface and aloft, along the airways; the Coast and Field Artillery with ballistic data for gunnery practice; the Ordnance with such surface and upper air data as are used in proving guns, and all other branches of the Army with forecasts, currents, and climatological data.

Washington-Alaska Cable and Telegraph Systems. — No new stations were established during the year. Squaw Harbor station was closed. High-speed equipment was purchased and placed in service on the Seattle-Anchorage channel making possible an increase in speed from approximately 40 to 150 words per minute. The system coöperated with scientific researchers seeking data during the International Polar Year. During 1933, this system handled commercial messages totaling 7,132,299 words and 3,860,451 words in Government messages. Receipts from commercial traffic amounted to $223,592.37.

Pigeon Service. — Progress was made in breeding and training pigeons for night flying. Lofts are now maintained at Forts Monmouth, Benning, Sam Houston, Shafter, William McKinley, and Mills, at Bolling Field, Scott Field, France Field, Quarry Heights, and at Schofield Barracks.

Telephone Systems. — During the year, the Signal Corps maintained 169 Government-owned switchboards with 31,547 telephones connected thereto. Eighteen switchboards with 1,784 telephones were rented from commercial companies.

Army Amateur Radio System. — This system now comprises some 1200 stations actively affiliated with the Signal Corps. Weekly operating drills were conducted and special tests were made with excellent results. In time of local emergency and disaster, parts of the system mobilized quickly to handle emergency communications when commercial facilities had failed. A notable example of such service occurred during the August hurricane on the eastern seaboard.

Army Radio Net.—The fixed radio system of the War Department is the backbone of the Army command and training communicating system. This net functioned efficiently throughout the past year. The net sent 621,042 messages with a total of 26,500,058 words; gross wordage handled during the year was 80,215,308.

THE NATIONAL GUARD BUREAU

Organization.—The reciprocal relationship existing between the state and the Federal Government is administered through a bureau of the War Department called the National Guard Bureau, whose chief is a National Guard officer holding a commission as Major General in the National Guard of the United States, and 29 other officers including four detailed for three years from the National Guard. For 1933 the authorized strength of the National Guard was fixed at 190,211 and actual strength as of June 30 was 185,925. The 840 headquarters and 3,185 units included 18 infantry divisions in various stages of completeness, 20 cavalry regiments (in 8 brigades, 4 unbrigaded regiments, and 4 miscellaneous units), 22 regiments and 3 battalions of coast artillery (9 regiments and 3 battalions harbor defense; 3 tractor-drawn and 10 anti-aircraft), and other special units.

Training. — The legal minimum training requirements are 48 armory drill periods of at least 1½ hours each and 15 days' field training per year. The troops are paid by the Federal Government: for the period of field training, at the same rate as for like grades in the Regular Army, and, for each armory drill, at approximately 1/30 of the monthly pay of like grades in the Regular Establishment. The average attendance of armory drills during the fiscal year 1932-33 was 174,043, all ranks, and at field training camps, 182,629. Training which is supervised by officers of the Regular Army is supplemented by attendance at service schools and by correspondence lessons. During the year ended June 30, 1933, applications to attend schools numbered 691 officers and 310 enlisted men, of whom 329 officers and 108 enlisted men actually attended. Extension courses were taken by 9,680 officers and 15,794 enlisted men. Twenty enlisted men qualified for admission to the United States Military Academy. In addition to Bureau service, a limited number of National Guard officers are detailed to duty with the War Department General Staff to assist in preparing policies and regulations affecting the National Guard.

Aviation. — There are 19 observation squadrons in the National Guard. They are equipped with Douglas 0-38 planes with Pratt-Whitney, Hornet-powered, 1690 HP engines, except that in six of the squadrons there are still two or three Douglas 0-24 planes with Liberty motors, which are gradually being replaced. During the past year a marked improvement has been made in carrying out of tactical missions and the use of radio.

Civil Contacts.—Over 11,000 officers and enlisted men were called out by the governors of 30 states to assist the civil authorities in providing relief in disasters, fighting fires, preserving order, and in a wide variety of similar duties. The average length of such duty was less than one week, but in some cases state troops have been on duty continuously throughout the year.

THE ORDNANCE DEPARTMENT

Functions.—The primary functions of this department are, (1) to design, develop, manufacture, or procure munitions for the use of our Army and, (2) to issue and service these munitions. Under munitions are included cannon, small arms, amunition of all kinds, bombs, fire control instruments, tanks and other combat vehicles, and many other miscellaneous items needed for Army training and operations.

Organization.—The administrative and operating responsibilities of the Office, Chief of Ordnance, are discharged through four management groups, organized along functional lines: (1) a general office for executive and administrative duties, (2) a technical staff to advise on questions of material, to conduct experimental investigations and proof tests, (3) a manufacturing service to design, develop, procure (by manufacture or otherwise) inspect, and accept all Ordnance material, and (4) a field service which stores, issues, inspects, repairs, alters, and maintains all Ordnance material in storage and in the hands of troops.

Materials and Processes.—Significant developments in materials and processes have been effected during the year, of importance in the industrial arts as well as in the Ordnance field. Metallurgical and textile experimentation has been forwarded with a view to standardization of specifications for use in all Federal Departments. To facilitate fabrication and supply in the field, ammunition and its components have been simplified. Automotive designs have been studied, in coöperation with the automobile world to insure the use of commercial equipment and designs with a minimum demand for special types of vehicles. In the field of armament, the aim has been, through completed experiments, to maintain our weapons on a par in effectiveness with other nations. In the realm of ballistics, acoustics, and chemicals, considerable advance has been made in applying the latest commercial developments, apparatus, and processes to the solution of Ordnance problems.

THE MEDICAL DEPARTMENT

During the past hundred years, the development of preventive medicine in the Army has reduced the sick rate 76 per cent and the death rate 88 per cent. In the past year, 86,244 Army cases were admitted to sick report. In addition, civilians, including beneficiaries of the Veterans' Administration and of the Soldiers' Home dependents of officers and enlisted men, retired military personnel, members of the National Guard, Reserve Officers' Training Corps, Officers' Reserve Corps, and Citizens' Military Training Camp personnel, and other civilians at Army stations where civilian medical attention was not available, were treated professionally. In addition to those who, because of illness, were excused from military duty, there were 1,019,654 out-patients during the year with a total of 1,846,683 treatments. Furthermore, there were 292,202 physical examinations made and 180,115 vaccinations of various kinds administered. Venereal disease cases dropped to the lowest number known in the Army, and there were but 616 cases of malaria (with only one death) reported.

The Medical Department Research Board in Manila completed many valuable research projects, notably the work on solar ultra-violet radiometry. The veterinary member of the Board determined that reconstituted milk can safely be used in the Army. A number of investigations continue in the field of complement fixation tests, blood chemical tests, immunization experiments in surra, and determination of the value of atebrin as a substitute for quinine in the treatment and prophylaxis of malaria. The Army Medical School completed research on mosquitoes as vectors of the virus of equine encephromyelitis and also on insect transmission experiments with herpes encephalitis virus.

THE CHEMICAL WARFARE SERVICE

Officers of this service are on duty in every Department, Corps, Area Division, and in the service schools. This assures coöperation with industry through the medium of technical advice and assistance. Inquiries were answered from all parts of the country, concerning the physiological action of the chemical agents used as war gases, as well as other toxic materials.

THE FINANCE DEPARTMENT

Functions. — This is the agency through which the War Department pays its personnel and bills, makes collections due, and audits property accounts. The Chief of Finance, as War Department Budget Officer, is charged with compiling and submitting to the Bureau of the Budget all estimates of funds for the several branches and services required for inclusion in the annual War Department appropriations made by Congress.

Total Amount Disbursed. — The total number of vouchers paid by the Finance Department in the fiscal year, 1933, was 926,008, representing an aggregate disbursement of $335,643,094.54.

Commercial Invoices.—Every bill incurred by the War Department is met on a cash basis, thus effecting considerable savings. During the past fiscal year, 871,776 commercial invoices were handled. Most of these indicated a discount period through which means $417,046.32 was earned. Since July 1, 1919, the Finance Department has saved the Government $4,308,439.76 by taking advantage of discounts offered.

Property Accounting.—All items of property purchased for the military establishment from monies appropriated by Congress for the support of the Army as an agency of national defense are audited by the Finance Department. This includes all building materials, installations and machinery until actually merged into real estate in the form of buildings, docks, piers, army transports and the like, and supplies purchased and issued to clothe, feed, and equip troops for field and garrison service. In the hands of Army agencies at present, excluding the value of grounds and buildings, there is well over two billions of dollars worth of property. The accountability of this property is divided among some 3,300 accounts which are audited at least once annually.

Savings Accounts.—Since 1873, soldiers' savings may be deposited in sums not less than $5.00 to draw interest at 4 per centum per annum. Cases of enlisted men retiring with sums above $5,000 to their credit are not rare; the largest single soldier's deposit of record is $23,600. On June 30, 1933, there were 5,673 active soldier deposits and the amount deposited during the fiscal year totaled $903,877.81; on these deposits the Government paid $37,902.87 interest. From June 30, 1873 to June 30, 1933, the sum of $72,396,768.60 has been deposited through this Army channel, and it has earned $3,769,610.47 in interest.

Civilian Conservation Corps.—The Finance Department was assigned the duty of making payments for this Corps upon its establishment in April, 1933. A total of approximately $14,500,000 was disbursed for this activity to the end of the fiscal year. This necessitated the drawing of some 430,000 checks, most of which represented payments of allotments made by members of the Corps to dependent relatives.

THE BUREAU OF INSULAR AFFAIRS

This Bureau constitutes the normal channel of communication in both directions between, on the one hand, the War Department and other agencies in the United States, and, on the other hand, the insular governments subject to War Department jurisdiction. The Bureau's functions are, as regards the insular possessions in question, in many respects analogous to those of a Colonial Office for Civil Affairs. Its detailed activities are not prescribed by Congress, but are subject to the control of the Secretary of War to whom its services are available.

Supervision, under the War Department, of Philippine affairs has been exercised for 35 years. During that time, bond issues of over $140,000,000 have been handled and, for sinking fund accounts, more than $37,000,000 of the same bonds have been purchased. In twenty-five years of administering affairs of Puerto Rico, bond issues totalling $39,000,000 have been handled, including the sale of $750,000 hydro-electric project and irrigation system bonds during the past year. For the past five years, the Bureau has supervised in the United States the purchase of supplies for the Philippines and Puerto Rico averaging annually $1,642,119.

The Bureau also has supervision of the Receivership of Dominican Customs, such receivership being charged with the collection of the customs of the Dominican Republic and the rendition of appropriate accounts and reports incidental to these duties.

ADJUTANT GENERAL'S DEPARTMENT

Functions.—As administrative officer of the War Department, The Adjutant General handles a vast amount of correspondence. During the fiscal year, 2,405,449 pieces of mail were received and distributed to the various divisions of the office. In August, 1932, a total of 216,475 communications was received, the maximum for any one month; the highest day receipts, 27,076 pieces, occurred on June 12, 1932. In addition, by telephone, inquiries concerning 33,644 individuals and 20,337 of a miscellaneous nature were answered.

Library Service.—The Army Library Service, under The Adjutant General, operated 153 main, 159 traveling, and 4 branch libraries. There were 24,311 new books and 2,540 subscriptions to periodicals purchased during the year; recorded circulation for the year was 1,816,381.

World War Records.—During the year, a million additional documents relating to discontinued commands were received. There are now approximately 116,399,000 such documents in The Adjutant General's Office. Several hundred valuable World War maps have been restored and repaired, and approximately 8,147,000 medical card histories of former soldiers have been filed with their individual records.

Military Decorations.—There were 4 awards of the distinguished-service cross; 5,008 silver star citations (943 with oak leaf clusters); 31,077 "Purple Heart" citations (3,360 with oak leaf clusters); 23 soldiers' medals; 8 distinguished flying crosses; and 164 French fourrageres during the year. Approximately 18,000 decorations have been conferred, to date, by foreign countries on members or former members of the United States Army.

THE QUARTERMASTER CORPS

Civilian Conservation Corps.—One of the latest peace-time tasks of the Quartermaster Corps is that of providing supplies for 310,000 members of the Civilian Conservation Corps, a membership nearly three times that of the Regular Army. These workers had to be supplied with food, clothing, shelter, and transportation. This required extraordinary effort, especially since enrollment was so accelerated that in a period of about three weeks nearly 220,000 men joined as forest workers. Equipment was different from that issued to the Regular Army. Also, while men of the Regular Army are stationed at military posts which are well-located with respect to markets and transportation facilities, the members of the Conservation Corps were scattered through more than 1400 small work camps, often remote from even a small village.

Cemeterial.—To mark the graves of deceased soldiers, sailors and marines, 31,160 headstones were furnished during the year. There are 81 national cemeteries in the United States, 1 in Mexico, 1 in Alaska, 1 in Belgium, 1 in England, and 6 in France. In cemeteries in the United States, there were 4,111 interments during the year, bringing the grand total to 427,594. Abroad there were 6 burials, making that total, 30,880. Two bodies, heretofore carried as unknown, were identified and two bodies heretofore listed as missing or unlocated were recovered. Road work to provide suitable approach to the Arlington National Cemetery was finished, and the new entrance gate, constructed by the Arlington Memorial Bridge Commission, will serve as the main entrance to the cemetery. Lee Mansion, within the cemetery, has been completely restored.

Pilgrimage of Mothers and Widows.—The fourth and concluding pilgrimage to American cemeteries in Europe was conducted in 1933. A total of 689 mothers and widows made the journey this year, the oldest, a stepmother aged 82, and the youngest, a widow aged 28. From 1930-1933, a total of 6,674 made the pilgrimage at the expense of the Government. The average age was 59 years. There were 9,812 mothers and widows, eligible under the law to make the trip, who did not avail themselves of the privilege.

Army Transport Service. — The transport *Grant* carried Air Corps personnel and impedimenta changing station from Mather Field, California to Barksdale Field, Louisiana, while the *Chateau-Thierry* was used to carry West Point cadets to and from Fort Monroe, Virginia, for summer training. The freighters *Ludington* and *Meigs* made special trips to Curtis Bay, Maryland, to load ordnance stores for shipment to overseas ports. The following summary shows value of services performed during the year:

Number of passengers transported...	48,564
Cubic tons of cargo transported.....	189,203
Pounds of mail transported.........	413,738
Number of remains transported.....	152
Number of animals transported.....	280
OPERATING COSTS:	
Operation of transports........	$2,664,560.20
5% overhead, based on above cost	133,228.01
Shore establishment..........	321,921.26
Transports out of commission...	799.15
	$3,120,508.62
Cost of operation of cable service	9,261.91

Comparison of Army Transport with commercial value of work performed:

Passengers (entitled to transportation at government expense):

Commercial value.............	$3,345,868.51
Army transport cost...........	1,566,495.33
Savings to Government......	$1,779,373.18
Cargo, Remains, Mails, and Animals:	
Commercial value...........	$3,321,145.95
Army transport cost.........	1,554,013.29
Savings to Government....	$1,767,132.66
Total cargo and passenger savings	$3,546,505.84

Horse Breeding.—More than 18,000 mares were bred to 650 stallions. There were purchased 107 stallions and 71 brood mares; 10 stallions were raised by remount depots; 11 stallions and 44 brood mares were donated; and 104 stallions were lost from all causes.

Disposal of Waste Material.—The War Department derived $311,480.54 by selling condemned public property and waste material and $79,594.92 from the sale of garbage, manure, and dead animals. In addition, salvaged material worth $337,820.09 was used within the Army and turned over to other governmental branches. Salvaged property worth $56,095.37 was sold for a nominal sum to charitable organizations.

Disposal of Surplus Property.—From the sale of clothing and supplies $486,689.12 was derived and $171,097.43 from sales to charitable organizations. In addition, clothing, equipment, and supplies worth $3,183,927.85 were turned over to other branches of the government.

THE INSPECTOR GENERAL'S DEPARTMENT

The Inspector General's Department consists of The Inspector General and forty officers, all detailed. During the year, nine served in the Inspector General's office, two served as additional members of the War Department General Staff, and the remainder were stationed at Headquarters of Corps Areas, Departments, and Divisions. Sixty-six reports of investigations were acted on, resulting in the saving of considerable money for the Government. Annual inspections were made of 425 posts, stations, and other Army activities in addition to numerous inspections of disbursing officers' accounts. The Inspector General also made country-wide surveys and inspections of Civilian Conservation Corps activities under the administration of the Army.

THE JUDGE ADVOCATE GENERAL'S DEPARTMENT

Function.—The functions of The Judge Advocate General's Department are to operate the system of military justice and to act as legal adviser to the War Department and the entire military establishment, both in Washington and in the field.

Courts-Martial.—During the past year, 1,681 persons were tried by general courts-martial, of which number, 1,580 were convicted and 101 acquitted. Specifications tried by general courts-martial represented 111 different offenses, but a large majority alleged desertion or absence without leave.

Contracts and Reservations.—In the handling of questions relative to the making or operation of contracts in which the War Department or any of its agencies is interested, during the past year, 722 formal opinions were prepared.

Claims and Bonds Section.—More than 817 formal opinions on questions pertaining to contractors' bonds and claims in favor of or against the Government were rendered.

Military Affairs Section.—472 formal written opinions in cases affecting Army organization, administration, and personnel were rendered.

Patents.—Patent cases against the United States in which the War Department is involved are:

Cases pending June 30, 1932	36	$244,948,923.28
New cases filed during year	4	1,000,000.00
Totals	40	$245,948,923.28
Judgments in favor of United States (claims dismissed)	4	$ 2,737,000.00
Judgments against the United States	1	363,500.00
Pending June 30, 1933	35	242,848,923.28
Totals	40	$245,948,923.28

Insular Affairs Section. — During the fiscal year, 95 formal opinions were given on insular affairs and, acting as attorneys for the governments of the Philippine Islands, Puerto Rico, and the Canal Zone, officers of this section participated in 13 cases before the United States Supreme Court, 3 before the First Circuit Court of Appeals, and 3 cases pending in insular courts.

CORPS OF CHAPLAINS

During the year, 16,507 services, attended by approximately 1,522,018 persons; 626 marriage ceremonies, 1,443 baptisms, and 1,690 funerals were conducted by Regular Army Chaplains. Civilian ministers held 2,396 services attended by 220,559 persons. Arrangements were perfected whereby making use of Reserve Chaplains to supplement those of the Regular Army, religious ministration was provided for the 1,330 Civilian Conservation Camps occupied on June 30, 1933. There are at present on duty 120 Regular Army Chaplains (5 short of quota) representing 20 religious denominations. The Corps also includes 218 Chaplains in the National Guard and 1,220 in the Reserve Corps.

CIVILIAN PERSONNEL DIVISION

Under Administrative Assistant John W. Martyn, this office exercises control in matters pertaining to civilian employees in the War Department and with the Army. This task involved, during the past year, decisions in matters of civil service law and rules, classification allocations and schedules, retirement determinations, and compensation changes for a force of employees, departmental and field, approximating 45,000 in number.

PANAMA CANAL

The Panama Canal, while not a part of the War Department, comes under the personal supervision of the Secretary of War. Lieut. Col. Julian L. Schley, Engineer Corps, is the present Governor of the Canal. During the fiscal year, 1933, total transits through the canal were 4,494, with a net tonnage of 22,821,876 tons. Tolls collected amounted to $19,620,458.53. Work progresses on the Madden Dam across the upper Chagres River, and its completion is expected early in 1935. It will, when finished, supplement the water supply in Gatun Lake for lockages, control floods, and provide additional hydro-electric power.

ARMY AERONAUTICS

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

STRENGTH OF AIR CORPS

At the close of the Fiscal Year 1933, there were 1282 officers commissioned in the Air Corps of the Regular Army. To this number may be added 52 Second Lieutenants detailed to the Air Corps as flying students and 1 Major of the Philippine Scouts. The Corps is still 368 officers short of its authorized strength. During the last two fiscal years, the average annual gain has been 23. Under present law, the only method of adding officers is by detailing graduates of the Military Academy to the Air Corps Flying Schools and commissioning the successful ones in the Air Corps. About 13,500 enlisted men, including flying cadets, were in the Corps, June 30, 1933, whereas the number authorized to be on hand at the end of the Five Year Program was 15,000. While an average of 335 flying cadets was authorized by the War Department, funds available permitted an average of only 268.

PLANES

On June 30, 1933, there was a total of 1,665 airplanes on hand for use of the Regular Army, Reserve Corps, and the National Guard. Of these, but 1,430 were serviceable for full use. This latter number included combat, observation, cargo, photographic, and primary and basic training types. There were only 499 combat planes. During the year, 307 airplanes were contracted for, the principal contracts covering 136 pursuit, 48 bombardment, 47 observation, 46 attack, and 10 cargo airplanes. Only 28 planes were actually delivered, of which 24 were observation, 2 were cargo, 1 was bombardment and 1 was pursuit. A new, non-rigid airship of 360,000 cu. ft. capacity the TC-13 was also completed.

MATERIAL

Aerodynamic and structural refinements have greatly benefited the performance of all types of airplanes, particularly pursuit. Studies were initiated to determine the value of slots and flaps, use of an auxiliary airfoil to increase lift and reduce landing speed, and the feasibility of unconventional airplanes. Refinements in aluminum alloy propeller blades were made and tests were conducted on steel and controllable propellers. Sound measurements of airplanes in flight were made with a view to reducing noise. Standardized landing and tail wheels and brakes were adopted, as was a vibration-absorbing engine mount. A flexible system of instrument-flying and instrument landing was thoroughly tested.

CONSTRUCTION

During the year, construction at Air Corps stations went forward as far as available funds would permit. The principal work accomplished was as follows: Benton Field, California, seawall, hydraulic fill, railroad tracks, water well and tank; Bolling Field, D. C., partial grading of flying field, enlisted men's barracks, railroad spur, warehouses, and partial completion of officers' and non-commissioned officers' quarters; Duncan Field, Texas, hangars, shops, paint, oil and dope storage, oil reclamation and paved aprons; Hamilton Field, California, buildings for one bombardment squadron; Langley Field, Virginia, most of the projects for which funds were appropriated were completed or under construction; March Field, California, bakery, laundry, and theater were 70 per cent completed; Maxwell Field, Alabama, officers' quarters which were authorized were 16-30 per cent complete; Patterson Field, Ohio, depot shops and hangars; Randolph Field, Texas, all construction except for the gymnasium, chapel and school, test blocks, additional drainage, and additional non-commissioned officers' quarters; Selfridge Field, Michigan, garage, quartermaster maintenance, post exchange, officers' mess, service club, bakery, and additional roads.

FLYING AND ACCIDENT STATISTICS

Last year 371,254 hours were flown, while this year, 432,966 hours were spent in the air. To this last figure should be added 2,412 hours for lighter-than-air craft and 34,345 hours for National Guard flyers. Compared with the Fiscal Year 1932, the total number of accidents increased from 423 to 442, but the fatal accidents decreased from 33 to 28; the fatalities decreased from 50 to 46, and the total injured from 89 to 82. This year for every 1,000 hours of flying, there was only .065 accident as compared with .088 for last year.

DEMONSTRATIONS AND EXERCISES

During October, 1932, an attack squadron from the Third Attack Group conducted a coöperative demonstration in connection with an Infantry battalion at Fort Benning, Ga.

An air attack was simulated, and using representative targets, an attack with guns, bombs, and smoke was made. In May, 1933, a combined Air Corps anti-aircraft exercise was conducted at Fort Knox, Ky. Anti-aircraft troops assisted by the Air Corps First Pursuit Group defended the area against attack and bombardment aviation. In the same month, Air Corps Command and Staff Exercises were held on the West coast, based at March Field, Calif. A large number of units took part in these exercises, flying from their home stations to the maneuver area and return. A number of day and night tactical situations were assumed, and much actual tactical experience was gained. Part of the exercises were conducted in the Seattle area.

MILITARY EDUCATION

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

GENERAL

With the adoption of the National Defense Act, the Regular Army became charged with the function of providing a large corps of instructors for the civilian components, *i. e.*, the National Guard, the Organized Reserves, and the Reserve Officers' Training Corps. This requirement, coupled with the needs of Corps Area and War Department Staffs, has so reduced the proportion of command positions with regular army troops to the total number of officers of eligible grades as to set a drastic limitation upon the time any one officer can command troops—the school of experience. This sacrifice, in turn, necessitated the establishment of some highly concentrated form of training, *viz* the special service school. These schools within the several arms of service, along with the general service schools at Fort Leavenworth, Kan., and in Washington, D. C., constitute a splendid educational system whose influence is felt throughout the entire military service.

INFANTRY

Functions.—The Infantry School, Fort Benning, Ga., trains officers and enlisted men in the tactics and technique of the Infantry and imparts a working familiarity of those elements in the associated arms of service. In thirteen years of operation, more than 72 per cent of all Infantry officers have completed one or more courses at this school.

School Personnel.—The faculty for 1932-33 was composed of 80 Infantry officers and one officer each from the Cavalry, Field Artillery, Engineers, Air Corps, Chemical Warfare Service, and Medical Corps. Approximately 162 enlisted men of the Infantry School Detachment served as assistant instructors.

Courses.—The following courses were conducted in 1932-33: Advanced Course, 102 graduates; Company Officers' Course, 125 graduates; National Guard and Reserve Company Officers' Course, 150 graduates (78 National Guard, 72 Reserve Corps); National Guard and Reserve Field Officers' Course, 18 graduates; Refresher Course, 16 graduates; Communications Course (enlisted men of the Regular Army and National Guard), 50 graduates; Stenographic and Clerical Course (enlisted men), 31 graduates; Horseshoers' Course (enlisted men), 9 graduates.

Tank Instruction.—The courses and graduates for the first session of the Tank Course held at the Infantry School, 1932-33, were: Regular Army Officers' Course, 41 graduates; National Guard and Reserve Officers' Course, 5 graduates (3 National Guard, 2 Reserve); Motor Mechanics' Course (enlisted men), 22 graduates.

School for Bakers and Cooks.—Trained 13 officers (one month course) in the duties of interior economy and mess management in addition to 108 enlisted men trained as mess sergeants, cooks and bakers.

CAVALRY

Functions.—The Cavalry School, Fort Riley, Kan., trains officers and enlisted men in Cavalry tactics and technique and qualifies them as instructors. Instruction in leadership of small units is stressed because of the independence of action of cavalry units.

Courses. — During 1932-33 the courses conducted and graduates were: For Regular Army Officers—Troop Officers' Course, 21 graduates; Advanced Class Course, 19 graduates; Advanced Equitation Course, 15 graduates. For National Guard and Organized Reserve Officers—Troop Officers' Course, 31 graduates; Advanced Course, 4 graduates. For Enlisted men — Non-commissioned Officers' course, Regular Army, 25 graduates and National Guard, 8 graduates; Horseshoers' Course, 27 graduates; Saddlers' Course, 22 graduates. One Cavalry officer attended the French *l'Ecole de Superieure de Guerre* and three officers were divided among the Polish, German and Italian Cavalry Schools.

ARTILLERY

The Field Artillery School, Fort Sill, Okla., develops Field Artillery technique and tactics and disseminates that knowledge to all Army components. During 1932-33, the following were the courses and the graduates: For Officers: Advanced Course, 48 graduates; Battery Officers' Course, 48 graduates; Advanced Horsemanship Course, 6 graduates; Advanced Motor Course, 7 graduates; Refresher Course, 1 graduate; National Guard and Reserve Battery Officers' Course (Fall), 22 graduates, (Spring), 43 graduates; National Guard and Reserve Field Officers' Course, 10 graduates. For Enlisted Specialists: Horseshoers (Fall), 9 graduates; Motor Mechanics (Fall), 6 graduates; Communications, Regular Army and National Guard (Spring), 56 graduates; Battery Mechanics (Spring), 9 graduates; Saddlers (Fall), 6 graduates, (Spring), 4 graduates.

The Coast Artillery School, Fort Monroe, Va., conducted the following courses in 1932-33: For Officers: Advanced, 23 graduates; Battery Officers; 35 graduates; Advanced Gunnery, 2 graduates; Advanced Engineering, 3 graduates; Field Officers, National Guard and Reserve, 4 graduates; Battery Officers' (National Guard and Reserve), 31 graduates. For enlisted men: Electrical Course, 14 graduates; Master Gunners, 8 graduates; Radio, 6 graduates. Clerical, 12 graduates; Special Electrical Course for National Guard, 6 graduates, and Radio, 7 graduates; Special Radio Operators' Course, 6 graduates. In addition, Coast Artillery officers of the Regular Army graduated from service schools and civilian educational institutions as follows: Army War College, 7; Command and General Staff School, 11; Q. M. Motor Transport School, 2; Naval War College, 2; Army Industrial College, 2; Massachusetts Institute of Technology, 1; University of Michigan, 1; and Air Corps Tactical School, 2.

ENGINEER CORPS

The Engineer School, Fort Humphreys, Va., trains engineer officers in the technique and tactics of the engineer arm. An extensive library is maintained, the main portion of which is located at the Army War College in Washington, with branches at Fort Humphreys and in the Office, Chief of Engineers. The following courses were conducted during 1932-33: Company Officers', 22 graduates; National Guard and Reserve Officers', 36 graduates (9 National Guard—27 Reserve); Enlisted Specialists', 34 graduates. Engineer Corps officers attended civilian educational institutions as follows: Cornell University, 6; Massachusetts Institute of Technology, 2; State University of Iowa, 4; Princeton University, 3; University of California, 9. Four officers were in attendance at Oxford University (Rhodes Scholarships); two made studies of European Hydraulic Research Methods under John R. Freeman Traveling Scholarship Awards by the American Society of Civil Engineers; one officer completed a four-year detail in Japan as a language student.

SIGNAL CORPS

The Signal School, Fort Monmouth, N. J. trains signal communication specialists for all arms and services. Officers are trained in the theory and operation of modern electrical communication equipment and in the tactical employment of all Signal Corps agencies. Enlisted specialists' courses are conducted along vocational training lines. The following lists the courses and graduates for the 1932-33 school year; Company Officers' Course, 10 graduates; National Guard and Reserve Officers' Course, 18 graduates; Communications Officers' Course (officers of other arms), 21 graduates. Course for Signal Corps enlisted men included: Meteorological Course, 8 graduates; Telephone Electricians' Course, 28 graduates; Radio Electricians' Course, 38 graduates; Telephone Maintenance Course, 9 graduates; Radio Operators' Course, 7 graduates. For enlisted men of other arms: Telephone Electricians' Course, 24 graduates; Radio Electricians' Course, 34 graduates; Field Radio Operators' Course, 37 graduates.

FINANCE AND ACCOUNTING

The Finance School, Washington, D. C., is divided into two departments, (a) Department of Finance and Accounting and, (b) Departmet of Property Accounting and Property Auditing. Courses are conducted for officers and enlisted men and instruction personnel at present consists of one officer, two warrant officers, and nine enlisted men. Forty students were graduated last year, making a total of 791 officers, warrant officers, and enlisted men who have completed the course since 1920. In addition to resident courses, the School also conducts special courses by correspondence, covering both Finance and Accounting, and Property Auditing.

MEDICAL DEPARTMENT

The Army Medical Center, Washington, D. C., comprises the Army Medical School, Army Dental School, Army Veterinary School, and the Walter Reed General Hospital. The basic and advanced courses formerly conducted by these schools have been reconstructed and are now known as post-graduate and specialists courses which are available to officers of the Medical Corps who are studying professional subjects. In addition, special subject courses are provided for selected enlisted personnel. In 1932-33, the following numbers were in attendance in the various courses: Army Medical School: Basic Course, 32; Advanced Course, 7; Enlisted Specialists' Course, 20. Army Dental School: Basic Course, 8; Advanced Course, 1; Enlisted Specialists' Course, 9; Army Veterinary School: Basic Course, 4; Enlisted Specialists' Course, 7.

The Medical Field Service School, Carlisle Barracks, Penn., trains Medical Department officers in the principles and methods of field service and in the performance of their command and staff duties. It also trains selected enlisted men and assists the Department in developing and perfecting necessary field equipment. For 1932-33, there were in attendance: Field Officers' Course, 10; Organized Reserve camps, 277; Advanced Course, 13; Basic Course (including 4 naval and 1 Cuban officer), 48; R. O. T. C., 299; Special Extension Course, 67; and Non-commissioned Officers' Course (including 4 from the Navy), 49.

The School of Aviation Medicine, Randolph Field, Tex., trains officers to qualify as flight surgeons. Extension courses in aviation medicine are also conducted to facilitate instruction in the resident courses. Approximately 280 students were enrolled during the year, 30 of whom completed the instruction.

Army Extension Courses conducted in the various Corps Areas enrolled nearly 6,000 students.

ORDNANCE DEPARTMENT

The Ordnance School gives basic training in the main functions of the Ordnance Department, namely, ordnance engineering, procurement of ordnance in peace and war, and supply of ordnance in peace and war. A two years' course is conducted at the Massachusetts Institute of Technology, Watertown Arsenal, Mass., at Picatinnny Arsenal, Dover, N. J., and at Aberdeen Proving Ground, Md. The class also visits other Ordnance arsenals and industrial plants for instruction. In 1933, ten studets, (including one Cuban officer) graduated.

The Ordnance Field Service School, Raritan Arsenal, N. J., trains enlisted men for supply and maintenance of ordnance equipment. In 1933, thirty-nine men from the Non-commissioned Officers' Course, and thirty-one from the Enlisted Specialists' Courses were graduated.

Civilian Educational Institutions.—Two officers of the Ordnance Department graduated from the Graduate School of Business Administration, Harvard University, and one from a special course in Ordnance Engineering at Stanford University.

CHEMICAL WARFARE SERVICE

The Chemical Warfare School, Edgewood Arsenal, Md., offers courses designed to keep abreast of new developments in chemistry and military science. Since its establishment in 1921, there have been graduated 1,460 officers and 329 enlisted men; of this number, 539 officers were from the Navy, 61 from the Marine Corps, in addition to 139 Navy enlisted and 32 Marine Corps enlisted. During 1932-33, the following were the courses and graduates; Unit Gas Officers' Course, 31 graduates; Line and Staff Officers' Course, 16 graduates; Field Officers' Course, 25 graduates; Navy Line Officers' Course, 21 graduates.

QUARTERMASTER CORPS

Schools for Bakers and Cooks, twelve in number, are scattered throughout the Corps Areas and Departments. Approximately 200 officers and 1,000 enlisted men from all arms and services completed courses in these schools.

Quartermaster Corps School, Philadelphia, graduated 28 officers from the regular course; 7 National Guard and 7 Reserve Officers, from a special course for those arms; and 50 graduates from the Warrant and Non-commissioned Officers' Course.

Quartermaster Corps Subsistence School, Chicago, graduated 9 officers (5 Quartermaster, 2 Navy, 2 Marine Corps).

Quartermaster Corps Motor Transport School, Camp Holabird, Md., graduated 8 line officers of the Army, 3 from the U. S. Marine Corps, and 12 Quartermaster officers. Enlisted men's courses were completed by 89 men.

AVIATION

The Air Corps trains its own personnel in the science and art of military aviation and receives also as students, officers and enlisted men of other branches, as well as military men of friendly foreign countries. Owing to decreased funds, it has become necessary to reduce gradually the size of classes with a view to limiting flying cadet graduates to 150 yearly. As aviation science has advanced, revised courses have met the new demands adequately, leading to an increase of 5 per cent in Flying School graduates. Instruction is divided among the following schools.

Tactical School, Maxwell Field, Montgomery, Alabama, trains in the tactical employment of the Air Corps and in its coöperative use with ground forces; 31 Air Corps, 9 other branches, and 1 Marine Corps graduate.

Engineering School, Wright Field, Dayton, O., trains military aeronautical engineering; 11 graduates.

Flying School (Primary), Randolph Field, San Antonio, Tex., offers an 8 months' course.

Flying School (Advanced), Kelly Field, San Antonio, Tex., offers a 4 months' course. During the year, 49 Regular Army officers, 225 flying cadets, 12 non-commissioned officers, and 1 foreign student graduated from the advanced school.

Technical School, Chanute Field, Rantoul, Ill., presents the theory and practice concerning the mechanical services and trades necessary in maintaining military aviation. There were graduated, 40 Air Corps Regular Army officers, 14 Air Corps Reserve Officers, 8 National Guard officers, 625 Air Corps enlisted men and 22 National Guard enlisted men.

GENERAL SERVICE SCHOOLS

The Command and General Staff School, Fort Leavenworth, Kan., graduating 122 student officers in 1933, conducts a two-year course, thoroughly grounding selected officers in the principles of the command, staff, tactics, and logistics of large tactical units.

The Army War College, Washington, D. C., extends instruction received at Leavenworth to the subjects of mobilization, supply, and military operations on a large scale. There were graduated in 1933, a total of 87 officers; 77 from the Army, 6 from the Navy, and 4 from the Marine Corps.

The Army Industrial College, Washington, D. C., trains Army officers for duties pertaining to the supervision and procurement of military supplies and of assurance of adequate provision for industrial mobilization in a national emergency. This work is confined to instruction in matters of general policy and the broader aspects of procurement activity. In the 1932-33 course, 52 officers were graduated; this included 38 Army, 12 Navy, and 2 Marine Corps. Eight instructors were also graduated, drawn from the Engineer Corps, Ordnance Department, Finance Department, Coast Artillery Corps, and the Infantry. Since its establishment, Feb. 24, 1924, this school has graduated 414 officers.

RESERVE OFFICERS' TRAINING CORPS

Enrolment.—At the close of the school year 1933, there were 106,195 students enrolled in the Reserve Officers' Training Corps. These were divided among 320 units scattered throughout the states, the District of Columbia, Puerto Rico, and Hawaii. There were 217 senior units with an enrolment of 66,729 and 103 junior units with an enrolment of 39,466. There were in attendance at the summer training camps, 537 basic course students and 6,662 advanced course students. At the close of the school year 1932-33, there were 106 preparatory schools, including high schools, which had received Government aid. Enrolment in the second-year advanced course totaled 6,497 and 5,846 commissions as lieutenants in the Officers' Reserve Corps were offered to graduates. In addition, 793 certificates were granted to those eligible for appointment but who had not yet reached the age of 21 or who did not desire appointment at the time.

CITIZENS' MILITARY TRAINING CAMPS

Of the 17,536 applicants ordered to camp, 16,188 reported, 15,797 were enrolled, and 15,088 completed the training. Of this latter number, 2,464 were graduated from the blue course and, of these, 66 were appointed second lieutenants in the Reserve Corps.

ADMINISTRATION OF VETERANS' AFFAIRS

By Frank T. Hines

Brigadier General U. S. A.; Administrator of Veterans' Affairs

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ORGANIZATION

As of June 30, 1933, the organization of the Veterans' Administration was subdivided into five major units: office of the administrator; office of the assistant administrator in charge of medical and domiciliary care, construction and supplies; office of the assistant administrator in charge of pensions and compensation; office of the assistant administrator in charge of finance and insurance; and office of the solicitor.

The Veterans' Administration maintains regional office facilities at 54 field stations for the preparation and adjudication of claims for all forms of pensions provided for veterans of the World War; physical examination of veterans of all wars applying for benefits; provision of medical, surgical and dental treatment, including hospitalization and domiciliary care; certification as to legality of appointment and fitness of fiduciaries as well as other matters affecting beneficiaries under legal disabilities, and the handling of activities incident to loans made to veterans secured by their adjusted service certificates. These offices also assist in the preparation of claims for pensions of wars other than the World War.

ACTIVITIES

The extent of the activities of the Administration is indicated by the following table showing the veterans or dependents of deceased veterans who were receiving benefits administered by the Veterans' Administration as of June 30, 1933, subdivided by type of service:

Type of Service	Number
War of 1812	7
Mexican War	415
Indian Wars	9,312
Civil War	150,366
War with Spain	244,861
Regular Establishments	26,166
World War	1,173,203
Total beneficiaries	1,604,330
Total veterans involved	1,270,667

During the three years the Veterans' Administration has been in existence, the number of beneficiaries receiving direct monetary benefits in the form of pension or compensation has increased by 524,286, or approximately 50 per cent. As of June 30, 1930, beneficiaries of the World War represented 56 per cent of the total number on the rolls, and as of June 30, 1933, the World War veterans represented 71 per cent or a gain approximating 15 per cent during the past three years.

DISABILITY AND COMPENSATION

Disability Allowance. — Disability allowance is that form of benefit authorized as of June 30, 1930, for any honorably discharged veteran who entered the service prior to Nov. 11, 1918 and served 90 days or more during the World War and who is suffering from a 25 per cent or more permanent disability, not the result of his own wilful misconduct, which was not acquired in service during the World War, for which compensation is not payable. The authorized monthly rates of payment for the different degrees of disability are as follows: 25 per cent permanent disability, $12; 50 per cent permanent disability, $18; 75 per cent permanent disability, $24, and total permanent disability, $40. Through June 30, 1933, a total of 986,291 applications had been filed, of which number 968,751 had been adjudicated. Of the total number adjudicated, 492,848 and 475,903 had been allowed and disallowed respectively.

Disability Compensation. — As of June 30, 1933, compensation was being paid to 337,036 veterans for disabilities directly or presumptively resulting from service in the World War, as compared with 330,266 at the close of the fiscal year 1932, an increase of 6,770. An analysis of the major disabilities for which veterans are receiving compensation discloses that 21 per cent of the total are suffering from neuropsychiatric diseases, 19 per cent from tuberculosis, and 60 per cent from general medical conditions. As of June 30, 1933, there were 2,966 women veterans receiving compensation payments, classified as follows: Army Nurse Corps, 2,424; other army women, 12; Navy Nurse Corps, 122; Yoemen (f) 402; and Marinettes, 5.

The following distribution shows the increase in active awards, subdivided by type of disability, during the ten year period June 30, 1923 to June 30, 1933:

Neuropsychiatric diseases	41,173
Tubercular ailments	22,452
General medical and surgical conditions	90,321

The largest numerical increase during the above period is shown for veterans suffering from general medical and surgical conditions. However, the largest per cent of increase is shown for neuropsychiatric diseases. The per cent of increase for neuropsychiatric diseases during the above period was 145 per cent as compared with 54 per cent and 80 per cent respectively for tubercular ailments and general medical and surgical conditions.

Death Compensation.—As of June 30, 1933, compensation was being paid to the dependents of 100,625 veterans who died as a result of disabilities or injuries incurred in the military service during the World War. This form of compensation was being paid as of the above date to 24,757 widows, 37,771 children, and 87,447 parents. An analysis of the immediate cause of death of the 100,625 veterans discloses that approximately 29 per cent were the result of battle injuries and 71 per cent the result of diseases.

RETIRED EMERGENCY OFFICERS OF THE WORLD WAR

On May 24, 1928, an act was approved providing for the retirement of emergency officers of the Army, Navy and Marine Corps, who incurred a disability in line of duty during the World War. This act provides that those officers who are rated not less than 30 per cent disabled from disabilities resulting from war service, or incurred in line of duty, shall be retired with pay at a rate of 75 per cent of the pay to which they were entitled at the time of discharge from their commissioned service. Public 212, 72nd Congress, provides that after June 30, 1932, no person holding an appointive or elective position in the Federal service shall be entitled to retired pay when the combined rate exceeds $3,000 per annum, unless the disability for which retired pay was granted was incurred in combat with an enemy of the United States. Under the act approved May 24, 1928, there had been received as of June 30, 1933, a total of 13,129 applications. Of the total number of applications received 6,979 had been retired with pay, 5,211 disallowed, and 939 retired without pay. Of the 6,979 officers retired with pay, as of the above date, 703 had been terminated by death, 263 under Section 212 of Public 212, 72nd Congress, and six by other reasons.

PENSIONS

Although 118 years have elapsed since the close of the War of 1812, there are yet seven persons in receipt of pensions on account of service rendered by soldiers in this war; five widows, one remarried widow, and one daughter. The following table shows the number of pensioners on the rolls as of June 30, 1933, by wars:

Wars	Soldiers	*Dependents	Nurses	Total
1812	......	7	......	7
Mexican	......	415	......	415
Indian	4,774	4,446	......	9,220
Civil	23,863	125,638	14	149,515
Spanish-American	193,921	38,797	552	233,270
Regular Establishments	19,559	4,807	......	24,366
World War	36	11	....	47
Total	242,153	174,121	566	416,840

* Dependents of 174,121 veterans.

The disbursements for all pensions during the fiscal year 1933 totaled $234,996,328.39. This amount, due to a change in payment date, represents a period of 12 months and 26 days. Of the total, $148,475,958.46 was paid to veterans, and $86,520,369.93 to dependents of deceased veterans.

The table (p. 314) shows the above amount distributed by wars:

Wars	Amount
1812	$ 3,906.67
Mexican	285,218.68
Indian	4,715,707.57
Civil	98,272,576.43
Spanish American	125,305,652.48
Regular Establishments	6,400,478.06
World War	12,788.50
Total	$234,996,328.39

ADJUSTED COMPENSATION
(The Bonus)

As of June 30, 1933, 3,990,833 claims for the several forms of adjusted compensation had been approved. The value of these claims approximated $3,717,537,979.21. The itemization below shows a distribution of these benefits by type and approximate value, as of the above date.

Of the certificates mentioned below, 152,986, having an approximate value of $153,116,348, had been matured by death as of June 30, 1933.

The act provided that for each day's service in excess of sixty days a credit of $1 and $1.25 a day would be allowed for service in the United States and overseas respectively, provided such credits do not exceed $500 and $625 respectively. To those veterans who had a basic credit of $50 or less, the act provided that the payments be made in cash. In the event the veteran had been killed or had died prior to the approval of the act, the adjusted service credit was paid in ten equal quarterly installments to his dependents, if the sum was over $50; otherwise, in one sum. In the case of a living veteran, to the basic credit of $50 or more there was added 25 per cent, and this sum (the basic credit plus 25 per cent) was used as a single net premium to purchase for the veteran at his then attained age a paid-up endowment certificate maturing upon his death or at the end of the 20-year period.

The original act provided that after a period of two years the certificate could be used as collateral to secure a loan, the amount of the loan not to exceed 90 per cent of the reserve value of the certificate. The loan value was subsequently changed to 50 per cent of the face value of the certificate and as of July 21, 1932, the law further amended to permit veterans to borrow immediately upon the issuance of the certificate.

As of June 30, 1933, 2,836,922 certificates were pledged for loans and held by the Veterans' Administration, in the amount of $1,536,880,478.52. In addition, it is estimated that loans made by banks to the value of $60,000,000 are outstanding.

TERM INSURANCE

On June 30, 1933, monthly installments of term insurance were being paid to 14,437 permanently and totally disabled veterans and to the beneficiaries of 137,027 deceased veterans. The value of the policies on which payments are being made on account of permanent and total disability and because of death is $116,910,573.00 and $1,159,560,076.00 respectively. The law provides that upon the death of the beneficiary named in term insurance policies, the commuted value of unpaid installments will be paid to the estate of the veteran, and as a result, lump sum payments have been made in 28,815 cases in the amount of $142,591,452. An analysis of the disabilities for which term insurance is being paid reveals that neuropsychiatric diseases are the disabling cause in 5,937 cases, or 46 per cent; tuberculosis in 3,648 cases, or 28 per cent; diseases of the circulatory system in 627 cases, or 5 per cent, and the remaining 21 per cent is represented by miscellaneous diseases or causes.

Type of Benefit	Number	Value
Applications received	4,032,292	....
Applications approved	3,990,833	$3,717,537,979.21
Cash payments	163,037	5,446,143.21
Veterans $50 or less	154,065	5,202,373.21
Dependents less than $50	8,972	243,770.00
Dependents $50 or more	116,821	40,603,869.00
Certificates	3,710,975	3,668,411,707.00
$60 lump sum payments	....	3,076,260.00

U. S. GOVERNMENT LIFE INSURANCE

As of June 30, 1933, there were 616,069 Government life insurance policies in force, aggregating $2,782,708,583 of insurance, compared with 641,218 policies in force, aggregating $2,977,083,467 of insurance as of June 30, 1932. This decrease is directly due to the industrial and financial conditions affected by the prolonged period of economic depression. During the period of twelve months prior to June 30, 1933, 20,917 new policies were issued as compared to 19,412 policies issued during the twelve month period ended June 30, 1932.

The United States Government life insurance policies provide that after having been in force one year they may be surrendered for cash or paid-up insurance. During the period of twelve months ending June 30, 1933, there were 15,178 policies, representing $50,679,641.99 insurance, surrendered for cash. The total number of policies surrendered for cash as of June 30, 1933 is 78,956, representing $253,288,940.13 insurance. As of June 30, 1933, policies having a face amount of $13,040,999 have been surrendered for paid-up insurance and 2,385 policies having a total face amount of $2,298,988.04 paid-up insurance have been issued.

HOSPITALIZATION

As of June 30, 1933, 33,518 veterans whose hospitalization was authorized by the Veterans' Administration were receiving treatment. Of this total 5,804 were being hospitalized for tubercular ailments, 19,791 for neuropsychiatric diseases and 7,923 for general medical and surgical conditions. To provide the care and treatment required by the veterans, the Veterans' Administration was utilizing as of the above date 228 hospitals. The following itemization shows the hospitals being utilized, subdivided by class of hospital, also showing the number of patients admitted during the month of June and the number remaining under treatment as of the close of the month:

Hospital	Number of Hospitals	Veterans Admitted	Veterans Remaining
Veterans' Administration	58	3,980	26,432
Veterans' Administration Homes	13	1,596	5,988*
U. S. Public Health	14	13	34
U. S. Navy	11	12	50
U. S. Army	6	52	302
Department of Interior	2	....	197
State and Civil	124	25	515
Total	228	5,678	33,518

* Includes 1,481 V. A. patients, non-members.

DOMICILIARY CARE

As of June 30, 1933, the members present in Veterans' Administration Homes totaled 15,694. Of this total 4,507 were under hospital treatment and 11,187 under domiciliary care. The following itemization shows a distribution of the members present in the Homes as of June 30, 1933, subdivided by type of service:

Type of Service	Present Domiciliary Members	Present Patients in Hospitals	Total
Civil War	115	229	344
War with Spain	2,162	696	2,858
World War	7,995	2,930	10,925
Other Wars and Regular Establishment	915	652	1,567
Total	11,187	4,507	15,694

RETIREMENT

As of June 30, 1933, there were 32,835 annuitants on the Civil Service Retirement rolls. This represents an increase of 403 annuitants during the month of June, 1933. Of the total number of annuitants on the rolls, 21,613 were retired for age, 7,281 for disability, 1,539 on account of involuntary separation, and 2,402 as the result of 30 years service. As of June 30, 1933, there were 248 annuitants on the Canal Zone Retirement roll, who were retired for the following reasons: for age, 171; disability, 63; 30 years service, 2; involuntary separation, 11; and voluntary separation, 1.

FINANCE

The following statement shows by purpose the approximate disbursement for the relief of veterans of all wars or their dependents, to June 30, 1933:

	Disbursements
Army and Navy Pensions:	
War of the Revolution	$70,000,000.00
War of 1812	46,207,627.07
Indian Wars	58,303,704.45
War with Mexico	60,424,346.97
Civil War	7,698,594,101.77
War with Spain	811,819,342.19
Regular Establishment	109,313,349.67
World War	308,053.92
Unclassified	16,513,425.54
Total	$8,871,483,951.58
Military and Naval Compensation:	
Death Compensation	$382,701,739.44
Disability Compensation	1,899,081,988.93
Emergency Officers' Retirement Pay	48,484,638.70
Disability Allowance	190,512,430.88
Annuities to Participants in Yellow Fever Experiments	49,250.00
Total	$2,520,830,047.95
Military and Naval Insurance	$1,620,784,164.58
U. S. Government Life Insurance	200,473,699.32
Administration	1,442,604,633.44
Hospital and Domiciliary Facilities and Services (Construction)	78,721,627.73
State and Territorial Homes	38,400,032.49
Adjusted Service Certificate Fund (Death Claims)	158,572,830.72
Adjusted Service and Dependent Pay	45,556,382.09
Loans to Veterans for Transportation	71,888.81
Vocational Training	644,925,816.27
Allotments and Allowances	582,942,787.34
Marine and Seamen's Insurance	35,077,918.69
Miscellaneous	796,675.25
Total	$16,241,242,456.26
Retirement of Civil Employees:	
Civil Service Retirement and Disability Fund	$193,444,538.15
Canal Zone Retirement and Disability Fund	544,754.48
Total	$193,989,292.63

WATERWAYS AND HARBORS

By E. M. Markham

Major General, U. S. A.; Chief of Engineers, War Department

INLAND WATERWAYS

Location and Description. — The principal systems are the Great Lakes, together with the New York State Barge Canal and the Hudson River; the Mississippi system, including the Mississippi, Missouri, Ohio, Illinois to Chicago, and their important tributaries; the rivers of the Atlantic Coast and the intracoastal waterway system connecting them; the rivers of the Gulf Coast, and the intracoastal waterway system extending from Pensacola *via*

New Orleans down the Texas coast to Corpus Christi, connecting with the numerous southern Louisiana waterways and with the Mississippi system, the San Joaquin-Sacramento system in California; the Columbia system in the northwest, and the smaller Pacific Coast rivers. These are improved or in course of improvement over stretches and to depths commensurate with their commercial importance and with the benefits to be derived from them.

Channel Depths.—The Great Lakes, which are really inland seas, have natural deep water except in the connecting channels. From Lake Superior to Lake Ontario these connecting rivers and ship channels have been artificially deepened so that the available draft is at least 20 feet. Under authority of the River and Harbor Act of July 3, 1930, the depths are being increased to provide for the passage of vessels of 24-foot draft. The more important harbors have depths equal to existing channel depths. The Barge Canal, which the Secretary of War was authorized and empowered to take over from the State of New York, has a depth of 12 feet. The various sections of the intracoastal waterway system between Bordentown on the Delaware River and Wilmington on the Cape Fear River have been completed to project depth of 12 feet, while the sections between Wilmington and Miami have been or are being improved to project depths of 7, 8, and 10 feet. Along the Gulf Coast projects have been adopted for improvement of certain stretches of the route between Pensacola Bay and Corpus Christi, Tex., to provide channels 9 and 10 feet deep. The Mississippi River has a 9-foot depth from Baton Rouge to St. Louis, with 6 feet thence to St. Paul, but work is actively in progress on the 9-foot channel between St. Louis and Minneapolis, authorized by the River and Harbor Act of July 3, 1930. The Illinois Waterway now has an available 9-foot channel, and the Sacramento River a 10-foot channel as far as the City of Sacramento. While the depths authorized under existing projects have not been attained in all cases, work is progressing as rapidly as time and funds will permit.

Status of Water Transportation.—Inland waterway transportation, after a widespread decline coincident with the extensive development of railroad facilities throughout the country, has, in the past ten or fifteen years, shown a pronounced increase. The trend toward a more extensive use of waterways is due to a number of causes. Among these is the realization that under suitable conditions as to character of traffic, origin and destination with respect to waterways, suitable channels, and modern carriers and terminals, water transportation is inherently cheaper than any other form. The increases in railroad rates have imposed a heavy burden upon the lower classes of traffic, which has made imperative the demand for more economical transportation. Waterways are particularly valuable in the handling of raw products and low grade commodities for which the economic necessities of the country demand low transportation costs. There is a growing realization that the three means of internal traffic, *viz.*, railroad, waterways and highways, are properly coöperative rather than competitive, and that the development of each of them is not only of benefit to the public but also to all transportation agencies concerned. There is a realization of the necessity of providing modern and efficient carriers, terminals, and transshipment facilities. In no section of the country is this more evident than in the Mississippi Valley. In addition to the established services of the Inland Waterways Corporation, numerous private and contract carriers afford service over this system of waterways. On the upper sections of the Ohio system there has long been intensive traffic, such as the coal movements on the Monongahela, Allegheny, and Kanawha, and on the Ohio River itself. Since the completion of improvements which provide 9-foot navigation throughout the year from Pittsburgh to New Orleans, large sums have been expended for the construction of modern floating plant and port facilities, and until the depression in general business during recent years, the tonnage transported increased rapidly. In spite of the handicaps imposed by this depression, the decline in tonnage over this inland water route has not been marked. The importance of our national waterways system, the need of completing it and of intensively developing its traffic, in coördination with other parts of the transportation system are appreciated by the people at large.

NEW WATERWAY PROJECTS

Improvements.—By the River and Harbor Act approved July 3, 1930, Congress adopted a total of 174 projects for waterway and harbor improvements in the United States. Eighty-five of these were for the improvement of rivers and canals, and eighty-nine were for the improvement of rivers and harbors. At the close of the fiscal year 1933, there were 954 projects in force, exclusive of projects for flood control on the Mississippi River and its tributaries, the Sacramento River, Calif., the Missouri River at Niobrara, Neb., and Yankton, S. D., and for operation and maintenance of the hydroelectric development at Muscle Shoals, Tennessee River.

Great Lakes.—Included in the projects under the River and Harbor Act are 17 projects for improvement of harbors and four for rivers and connecting channels of the Great Lakes system. These include both new and the extensive existing projects. The deepening of the channels of the Great Lakes to afford vessel drafts of 24 feet at low water datum for downbound vessels was actively carried on during the fiscal year. The work on the St. Mary's River was practically completed at the close of the fiscal year, and the projects for the Detroit River, St. Clair River and the channels in Lake St. Clair were well advanced. The new breakwaters at Oswego were completed but some work remains to be done in deepening the harbor areas. Under the River and Harbor Act, the Secretary of War was authorized to take over from the State of New York and to operate the Oswego and Erie Canals. These are to be kept and maintained as barge canals only, and at present depths.

Intracoastal Waterways.—The extensive improvements authorized on the inland waterways along the Atlantic and Gulf Coasts were well advanced during the fiscal year. The project for an 8-foot channel between the Cape Fear River and Winyah Bay was about 25 per cent completed, there remaining only 25 miles in which no work has been done. A project was included in the Public Works program under the National Recovery Act to provide a 10-foot channel from Yinyah Bay to Charleston, S. C. From the latter point to Beaufort, S. C., the waterways was completed to 7-foot project depth, which depth also obtains to the St. Johns River, Fla. In the stretch between Jacksonville and Miami, where an 8-foot channel is being provided, approximately 104 miles remain to be dredged, in 63 miles of which work has not yet been started. Work was continued on the 6-foot channel across southern Florida *via* the St. Lucie Canal, Lake Okeechobee, and the Caloosahatchee River, and on the channel 9 feet deep and 64 miles long from Pensacola Bay to Mobile Bay. The waterway between Mobile Bay and New Orleans was completed during the year, with 10-foot depth to Mississippi Sound and a 9-foot channel through Lake Borgne, the Rigolets and Middle Ground Channel to the 9-foot contour in Lake Pontchartrain near the end of the Inner Harbor Navigation Canal. West of the Mississippi the waterway follows two routes to Morgan City, thence one route to the Sabine River. Dredging of the entire 9-foot project between the Mississippi and Sabine Rivers was nearly completed, and the Harvey and Vermilion locks were well under way. From the Sabine River about 3 miles below Orange, Texas, the channel is being dredged to a depth of 9 feet.

Mississippi System.—The Mississippi projects provides for 9-foot navigation from Baton Rouge to St. Paul and Minneapolis. Ocean shipping goes to Baton Rouge. Considerable progress was made on the construction of locks and dams on the section of the upper Mississippi between the mouth of the Illinois and Minneapolis. The two parallel locks at Rock Island were completed, the construction of Dam No. 15 continued, and contracts let for supplying, assembling and installing machinery and electric control system for both locks and dam. Contracts were let for the lock at Alma, Mich., the lock and dam at Fountain City, Wisc., and a lock at Canton, Mo., and a dam was built at Clarksburg, Mo. The 9-foot project, as a whole, was about 8 per cent completed at the end of the fiscal year. The Tennessee River is to be improved in order to provide 9-foot navigation; preliminary investigations were continued in connection with the project. The 9-foot project for the Illinois Waterway connecting the Great Lakes and the Mississippi River System was completed. Improvement of the Missouri River to secure a navigation channel 6 feet deep to Kansas City was continued, and at ordinary stages a 6-foot channel is available from Kansas City to the mouth.

PORTS

Ocean Port Depths.—The maximum depth that has been provided in harbor channels is 40 feet at mean low water, except in the channel through the outer bar of San Francisco, where a depth of 45 feet has been authorized to afford safe navigation to deep draft vessels in the heavy swells there encountered. The depth of 40 feet has been afforded at New York Harbor and at other ports of primary importance to the Navy. While more than 90 per cent of the world's shipping draws less than 30 feet, yet to afford full, free and unimpeded navigation, a depth of ~~35~~ feet is provided at the principal harbors, and it may be said that for a port engaged in ocean shipping such depth is advisable when it can be provided at a cost commensurate with the volume of commerce.

New Port Projects.—The River and Harbor Act of July 3, 1930, provided for the adoption of 89 projects for port improvements in the United States. Included in this number are new projects and extensions of others adopted prior to the passage of the Act. During the fiscal year 1933, 55 reports on proposed port projects were submitted by the War Department to Congress. Of these, 26 were favorable and 29 were unfavorable.

Port Facilities.—While considerable activity has been evidenced by state, municipal, and private interests during the past year in the construction of terminals, dredging of channels, and provision of additional facilities for handling freight, only a few of the more outstanding developments can be enumerated. As part of the comprehensive plan of the New York Port Authority, approved by Congress, the new Inland Freight Terminal was opened to traffic Oct. 3, 1933. It is served by all the railroads entering New York City by means of automotive equipment operating between rail terminals and the building, and is the initial link of three such terminals, designed to handle all less-carload freight in Manhattan south of 59th Street. Work will soon be initiated on the construction of a single tube of the Midtown Hudson Tunnel, which is also part of the comprehensive plan. The City of New York constructed new piers on the North, East and Hudson River fronts, and private interests constructed and rebuilt several piers in Brooklyn and erected a terminal at Hoboken for transferring loaded freight cars to vessels operating between New York City, Havana, and New Orleans. The Commonwealth of Massachusetts has under construction a $260,000 state pier for passengers and freight at Buzzards Bay, the western terminal of the Cape Cod Canal. At the new port of Albany, a 13,500,000 bushel grain elevator, a reinforced concrete cattle feed mill, and two new transit sheds were completed. Trenton, N. J., constructed a $468,000 modern marine terminal, consisting of a 1,200-foot wharf and a steel frame cargo shed. At Pier G of the Port Richmond Terminal at Philadelphia, an electrically operated stiff-leg derrick having a lifting capacity of 100 tons at a radius of 80 feet, was installed chiefly for loading structural steel for the new bridges at San Francisco. The Board of Harbor Commissioners of New Orleans extended the Charbonnet and Bienville Street wharves, each addition having a structural steel wharf shed and automatic sprinkler system. The Bienville Street Wharf has three double sets of transverse package conveyors, the outer or river end of each set being adjusted to river stages by gantry cranes. Two additional cotton warehouses were built at the rear of the Charbonnet Street Wharf. Below Lake Charles, on the Calcasieu River, a terminal consisting of a wharf and two transit sheds was under construction, one bulk oil terminal was completed and another nearly finished. At San Francisco, Piers 35 and 45 and the Islais Creek terminal were extended, new grain handling facilities were added at the latter, and the State Cold Storage Plant was enlarged. A new vegetable oil terminal and a new garbage wharf were built at Oakland, and the Encinal Terminals extended. On the Great Lakes the most noteworthy accomplishment was the completion by the Board of Harbor Commissioners of Milwaukee of a construction program involving the expenditure of approximately $1,788,000 and including South Pier No. 1 and South Slip No. 1; 3,840 feet of steel bulkhead in the lake and 1,950 feet in the east bank and south end of Kinnikinnic Basin and dredging the basin to provide a sheltered mooring for large vessels; a steel transit shed on the north side of South Slip No. 1; trackage and roadway connections to South Slip No. 1 and South Pier No. 1; roadways, sewer lines and waterways; and equipment of the transit shed and pier with cranes.

FREIGHT TRAFFIC OF INLAND WATERWAYS IMPROVED BY GOVERNMENT (1932)*

Waterways	Short tons	Value
Hudson R., middle stretch	3,594,649	$ 61,102,161
Hudson R., upper stretch	2,276,117	81,930,251
Delaware R., above Philadelphia	3,009,147	11,484,144
Chesapeake-Delaware Canal	1,017,332	41,558,078
Waterway from Norfolk, Va., to the Sounds of North Carolina	76,591	1,275,599
St. Johns R., above Jacksonville	178,598	9,376,584
All others, Atlantic Coast	12,893,499	343,556,604
Tombigee-Warrior System	959,433	$ 27,740,138
Southern Louisiana Waterways (excluding Mississippi R.)	2,668,881	53,792,946
All others, Gulf Coast	21,900,653	233,871,835
San Joaquin R.	690,031	$ 18,402,245
Sacramento R.	712,816	32,860,664
Columbia R. and lower Willamette below Vancouver and Portland (excluding ocean commerce)	4,838,131	30,074,509
All others, Pacific Coast	6,219,755	55,924,395
Mississippi R., below Vicksburg (excluding ocean commerce)	5,115,570	$ 184,866,583
Mississippi R., Memphis to Vicksburg	4,774,602	176,503,507
Mississippi R., Cairo to Memphis	2,905,262	152,169,906
Mississippi R., Minneapolis to Ohio River (Cairo)	2,091,946	66,375,204
Ohio River	14,316,914	153,756,626
Monongahela R.	9,399,465	51,578,027
Allegheny R.	2,157,515	9,848,706
Kanawha R.	1,482,132	8,396,921
All others, Mississippi system	5,253,856	43,155,494
All others in the United States	48,173,229	$ 849,826,906
TOTAL	156,706,124	$2,699,428,033

*See Table, page 322.

NET TOTAL INTERNAL WATERWAY COMMERCE (1923-1932)

Year	Short tons	Value
1923	153,700,000	$2,960,200,000
1924	173,200,000	3,446,000,000
1925	204,569,000	3,950,450,000
1926	217,000,000	3,680,000,000
1927	219,000,000	3,930,000,000
1928	227,300,000	3,838,000,000
1929	245,894,000	3,871,300,000
1930	226,760,000	3,557,000,000
1931	179,735,000	2,816,463,000
1932	151,276,000	2,589,992,000

COASTWISE COMMERCE
(1932)

Port	Tonnage both ways	Value
Portland, Me.	1,877,296	$ 42,382,206
Boston, Mass.	10,883,603	337,264,181
Providence, R. I.	3,782,860	332,858,110
New York, N. Y.	30,496,846	1,546,955,405
Philadelphia, Pa.	8,353,982	327,441,740
Baltimore, Md.	4,723,749	111,279,711
Norfolk-Newport News, Va.	16,847,980	327,161,890
All others, Atlantic Coast	19,284,872	711,193,863
New Orleans, La.	4,315,325	$ 134,963,270
Galveston, Houston, Texas City, Tex.	11,666,914	263,552,208
The Sabine Ports	21,189,221	205,354,754
All others, Gulf Coast	6,720,647	117,563,329
Los Angeles, Cal.	13,236,667	$ 644,900,860
San Francisco Bay and Harbour, Calif.	14,385,998	587,600,285
Portland, Ore.	2,998,177	153,328,511
Tacoma, Wash.	1,020,878	41,295,427
Seattle, Wash.	3,817,443	209,110,182
All others, Pacific Coast	9,163,472	174,897,997
Ports of Hawaii	2,904,937	$ 173,009,651
Ports of Alaska	256,833	36,387,078
Ports of Puerto Rico	940,926	72,047,623
TOTAL, all ports	188,868,626	$6,550,278,281
TOTAL, ALL PORTS, corrected for duplications of receipts and shipments	94,434,313	$3,275,139,140

COMMERCE THROUGH THE PANAMA CANAL

Fiscal Year	Intercoastal[1]	Total
1924	13,527,378	26,994,710
1925	9,496,259	23,958,836
1926	9,871,210	24,747,541
1927	11,365,592	31,078,000
1928	10,833,443	33,186,394
1929	11,084,212	34,342,567
1930	11,174,429	33,633,860
1931	9,862,020	28,092,736
1932	7,417,742	22,184,958
1933	7,197,801	20,280,655

[1] Included in coastwise figures.

FOREIGN AND DOMESTIC COMMERCE OF PORTS DURING THE CALENDAR YEAR 1932
(Short tons)

Grand Divisions	Foreign				Domestic		Grand Total	
	Imports		Exports					
	Tons	Value	Tons	Value	Tons	Value	Tons	Value
Atlantic coast	24,311,184	$1,549,521,157	8,478,505	$1,017,919,449	184,418,410	$7,194,006,993	217,208,099	$9,761,447,599
Gulf coast	3,073,966	89,712,523	12,084,178	472,670,282	51,361,988	926,473,640	66,520,132	1,488,856,445
Pacific coast	2,457,882	170,079,234	9,476,502	213,097,794	65,052,148	2,311,759,413	76,986,532	2,694,936,441
Great Lakes	3,072,251	69,668,610	7,474,888	46,084,918	83,933,712	1,447,630,630	94,480,851	1,563,384,158
Grand total, unadjusted	32,915,283	$1,878,981,524	37,514,073	$1,749,772,443	384,766,258	$11,879,870,676	455,195,614	$15,508,624,643
Adjusted total, eliminating all known duplications	32,915,283	$1,878,981,524	37,514,073	$1,749,772,443	216,064,870	$6,714,565,947	286,494,226	$10,343,319,914

	Tons	Value
Total commerce of the United States, 1932, adjusted total	342,488,723	$10,910,429,345

FREIGHT TRAFFIC OF OTHER INLAND WATERWAYS (1932)

Waterways	Short tons	Value
New York State Barge Canal	3,643,333	$ 203,382,919
Lehigh and Delaware Division Canals, Pa.	102,852	234,919
Chicago Sanitary Drainage Canal	433,116	2,117,557
New Basin Canal, La.	152,941	2,986,398
All others of record	928,444	45,379,908
TOTAL	5,260,786	$ 254,100,984
GRAND TOTAL, corrected for duplications because of commerce moving over two or more waterways	151,276,145	$2,589,991,917

ORGANIZATION OF THE NAVY

By S. P. Fullinwider

Commander, United States Navy, Retired

ADMINISTRATIVE ORGANIZATION

The President of the United States is Commander-in-Chief of the Navy. By constitutional authority and supplemental legislative action the President delegates his authority in large part to a member of his Cabinet, the Secretary of the Navy, who administers the Navy Department in accordance with the law and with the funds appropriated by Congress. To assist the Secretary in his duties, notably those pertaining to the maintenance and operation of the shore establishments, there is an Assistant Secretary of the Navy. In the absence of the Secretary his authority and responsibilities devolve upon the Assistant Secretary.

While the head of the organization is civilian, in conformity with the American political code, the administrative personnel of the Navy Department is almost exclusively naval. The organization comprises two main groups of bureaus and offices, one for the maintenance of the personnel and material of the Navy, the other for the direction of its activities towards the objectives of the naval policy. The former group constitutes a routine staff, the latter a general staff, or, in American phraseology, the Office of Naval Operations.

BUREAUS AND OFFICES OF THE NAVY DEPARTMENT

The Bureau of Navigation has cognizance of matters of enrollment, training, administration, and discipline of the personnel of the Navy. It supervises the Naval Academy where midshipmen are educated and trained for service as commissioned line officers of the Navy, and it provides for the subsequent technical education and the examination and promotion of officers. For the enlisted personnel, the Bureau maintains recruiting offices throughout the country, training stations where recruits are given elementary naval training and technical schools for specialized training. While the Bureau is charged with the training of individuals, it is not responsible for ship efficiency. It fixes the proper complements of officers and men for each type of ship, assigns individuals to specific duty and keeps the service records of all officers and enlisted men. The Bureau controls the Naval Observatory, the Hydrographic Office, and the Naval Home. The Hydrographic Office furnishes charts and navigational publications to the naval service and to commercial vessels as well. The publications include Sailing Directions, Lights Lists, Radio Aids to Navigation, Notices to Mariners, Notices to Aviators, the Naval Air Pilot, and the Daily Memoranda in regard to changes in Dangers and Aids to Navigation. It conducts hydrographic surveys in foreign waters.

The Bureau of Medicine and Surgery administers the naval hospitals and the medical work on board ship through the Medical Corps, Dental Corps, Hospital Corps and Nurse Corps. It supervises hygiene both ashore and afloat. It examines recruits before enlistment, conducts medical examining boards and keeps medical records of all officers and men of the Navy and Marine Corps for reference in case of disability and for the information of the Pension Office.

The Bureau of Construction and Repair, in coöperation with other bureaus concerned, designs and supervises the construction of ships of the Navy, and has cognizance, through its organizations at the various navy yards, of the docking and repair of vessels. It conducts much research and experimental work pertaining to its own activities and maintains an experimental model basin at the Navy Yard, Washington, D. C., where models of naval vessels and also of commercial craft are tested.

The Bureau of Engineering has cognizance of the design, construction and maintenance of the power plants of vessels and of radio and other communication apparatus for the Navy both ashore and afloat. It conducts much research and development work and keeps the service informed of engineering tests and improvements and of material casualties.

The Bureau of Ordnance designs and manufactures, or procures, naval weapons and ammunition and the range-finding and fire-control apparatus required for their use. It operates numerous plants, including the Naval Gun Factory, Washington, D. C., where ships' guns and mounts and various other ordnance material are manufactured; the Naval Torpedo Station, Newport, R. I., which manufactures torpedoes; the Naval Torpedo Station, Keyport, Wash.; the Naval Powder Factory, Indian Head, Md., where a large part of the powder used by the Navy is made; the Naval Proving Ground, Dahlgren, Va., where all naval guns are tested before their installation on board ship, and where much experimental work is carried on; ammunition depots, mine depots, etc.

The Bureau of Aeronautics has cognizance of the development, procurement, maintenance, and repair of aircraft for the Navy and Marine Corps. All tactical units of naval aircraft are assigned to and operate with the fleet. The carriers *Saratoga* and *Lexington* have a complement of 72 planes each, and the *Langley* 29. Battleships carry 3 planes, heavy cruisers 4, and light cruisers 2. Planes are assigned to the base and scouting forces and to the fleet air bases at Coco Solo and Pearl Harbor. The Marine Corps operates two fighting squadrons and four observation squadrons. To shore establishments are allocated only such planes as are required for the training of pilots of the Navy and Marine Corps and their reserves, and a small number for administrative and experimental use. The Bureau's field activities are carried on at inspection offices in the various aircraft production centers, at naval air stations and fleet air bases, at the naval reserve aviation bases and at the Naval Aircraft Factory, Philadelphia.

The Bureau of Supplies and Accounts, officered by the Supply Corps, handles the finances of the Navy, ashore and afloat, pays the personnel, both civil and naval, and makes all contracts involving funds. It provides food and clothing for all enlisted personnel and maintains the stock of materials for itself and other bureaus which must be kept in store ready for use or for the emergency of war.

The Bureau of Yards and Docks, officered by the Civil Engineer Corps of the Navy, has charge, with few exceptions, of the design, construction, and maintenance of the public works and public utilities of the Navy. As all its services are rendered for the facilitation of the work of other organizations of the Navy, it consults each of them in matters that concern it and lays out its plans accordingly.

The Office of Naval Operations accepts ships, men, and supplies from the maintenance side of the Department, works them up into efficient tactical organizations, and operates them in peace and war to carry out the policies of the Government. The Chief of Naval Operations is ranking officer of the Navy by virtue of his office. The office comprises several divisions. The Fleet Training Division is in charge of drills, target practice, engineering competition, and athletics. By a system of competition and observation it promotes ship and fleet efficiency. The Office of Naval Intelligence collects information of naval import, both foreign and domestic, and disseminates same to the naval service and to other interested government departments. The War Plans Division prepares plans for possible war operations, such plans usually providing for the mobilization of the active and reserve forces, concentration in suitable areas, arrangements for supply and maintenance of the fleet, and decision as to objectives. The Material Division coordinates the arrangements of the material bureaus for repairs of vessels. The Ship Movements Division manages the ships and fleets in commission. The Naval Communications Office handles all radio and telegraphic operations.

The Office of the Judge Advocate General has cognizance of all legal affairs of the Navy Department, both civil and military. The civil division handles those pertaining to legislation and general and naval law, admiralty court cases, collections of indebtedness to the government, sales of naval vessels, inventions and patents, real estate matters, and, in general, such other legal business as arises in the conduct of any great corporation. The military division supervises the legal part of the discipline of the navy personnel, reviews the records of courts-martial previous to action by the Secretary of the Navy, and supervises the naval prisons.

The Navy Yard Division (Office of the Assistant Secretary) handles matters pertaining to the civil service employees of the naval establishment within and without the continental limits of the United States, supervises the administration of navy yards for the purpose of maintaining maximum efficiency at minimum cost, supervises technical operating equipment at navy yards, and administers safety engineering work.

The Naval Petroleum Reserve Office has cognizance of all matters relating to naval petroleum and oil-shale reserves and the general policy regarding future oil supplies for the Navy.

The Joint Board composed of Army and Navy officers, is an advisory body to the Secretary of War and the Secretary of the Navy upon major questions affecting the two services jointly. Such questions are referred to it by the President or by either secretary or may originate within the Board itself as a result of its constant study of subjects and methods for the advancement of the national defense, the promotion of efficiency and coöperation, and the elimination of unnecessary duplication. The continuous service of the Board provides an effective and economical method of coordinating the Army and Navy in all phases of national defense.

The Aeronautical Board of representative Army and Navy officers is charged with the preparation of plans to prevent competition in the procurement of material, recommendation regarding projects for experimental stations, coastal air stations, and stations to be used jointly by the Army and Navy, and with the consideration of estimates for appropriations for the aeronautical programs of the Army and Navy with a view to the elimination of duplication and a helpful coöperation between the services.

The General Board is charged with the investigation and study of major questions of departmental policy such as the shipbuilding policy of the Navy, and naval questions arising in connection with international conferences. The Board holds exhaustive hearings on subjects on which the advice of technical bureaus and experts is desirable.

The Compensation Board supervises the accounting work in connection with contracts and settlements for naval vessels built under cost-plus contracts, and conducts such investigations as are required in connection with such financial matters. It also coöperates with the Naval War Claims Board.

The Navy Budget Office is the representative of the Bureau of the Budget which controls the financial estimates for the Navy. After receiving the President's orders, the Budget Officer allots to each department of the government the sum it is to have for the year. The Secretary of the Navy, in council with the bureau chiefs, then allots to each of them a sum the total of which will exhaust the allotment, and a bill is prepared for submission to Congress which controls the policy to a great degree through its appropriations.

The Secretary's Council, at which the chiefs of bureau and other officers concerned periodically meet to discuss and arrange for current work, coordinates the various branches of the department.

The Island Governments of Guam and American Samoa are administered by the Navy Department through naval governors.

UNITED STATES MARINE CORPS

The United States Marine Corps is a complete military organization within the naval establishment. Its organization and administration are similar to those of an army, with modifications to meet naval requirements. A marine is a sea soldier serving either ashore or afloat as circumstances require. The Corps is headed by the Major General Commandant, whose headquarters are in the Navy Department, Washington, D. C. The present strength of the Corps is about 1150 commissioned and warrant officers and 15,350 enlisted men. While the primary function of the Corps is to furnish marine detachments for service on board naval vessels and guards for naval stations, a conspicuous and most important function has been to provide expeditionary forces for service incidental to political disturbances and resultant strife abroad, notably in Nicaragua, Haiti, and China. Such foreign duty is always undertaken in coöperation with the Department of State and usually at the request, or with the consent, of the government of the foreign state concerned. The Corps maintains its own aviation organization.

SHORE STATIONS

The activities of the Navy on shore are varied and extensive, and for their operation it is necessary to maintain public works and utilities of vast proportions and in many parts of the world. At the navy yards are dry docks, piers, power plants, rail roads, service lines, and other facilities and equipment required for the repair and provisioning of the sea and air fleets, training and hospitalization of personnel, storage of supplies, research and experimentation, and other industrial and military purposes. The physical work of maintenance of the Navy is carried on principally at the navy yards and other shore stations which are operated mainly by civilian personnel and directed from the Navy Department by the Navy Yard Division under the Assistant Secretary. The principal yards and stations are each industrially organized under a commandant who carries on the work of construction, repair, and supply of ships according to directions from the responsible bureaus in Washington which allot him the necessary funds for each task.

THE SEA FORCES

The major combatant strength of the Navy is concentrated in one large command, the United States Fleet, under a commander-in-chief. This fleet comprises four main forces: Battle Force, Scouting Force, Submarine Force and Base Force. These forces are organized by types of vessel, based on geographical considerations and the requirements for peacetime training and operation. The Battle Force is composed of battleships, cruisers, destroyers, aircraft (carriers and rigid airship,) and minecraft. The Scouting Force is composed of cruisers, destroyers, and a training squadron. The Submarine Force includes the New London, Coco Solo, and Pearl Harbor submarine bases with the submarines and their attending craft at these points, and the fleet submarines and their attending craft which normally operate with the Battle Force. The Base Force is composed of auxiliary (non-combatant) vessels necessary for the provisioning, fuelling and other maintenance service to the fleet, and is divided into two squadrons to operate with the Battle and Scouting Forces.

Normally, the entire active fleet is kept intact and is employed throughout the year in a comprehensive program of tactical and strategical exercises, target practice, and other training. The fleet, or portions thereof, holds joint exercises with the Army, from time to time, to work out problems of coast defense.

The United States Asiatic Fleet is the second most important command. It is composed of cruisers, destroyers, gunboats, submarines, minecraft, and auxiliaries. Owing to unsettled conditions in China and the consequent hazard to American lives and interests, the Asiatic Fleet maintains patrols on the Yangtze River, and, in addition, keeps vessels so distributed as to be ready for emergencies at affected ports. Marine contingents are maintained on shore at Shanghai and at the American Legation in Peiping.

Besides the two fleets, there is usually a small Special Service Squadron in commission; also the Nava Transportation Service, and a fe vessels on special duty.

NAVAL RESERVE

The Naval Reserve comprises thre main classes: the Fleet Naval Reserv composed of ship divisions and ba talions and of aviation squadron trained for mobilization as organizations, and also ex-service men of th regular Navy who constitute a rese voir of trained individuals availab in emergencies; the Volunteer Nava Reserve of individuals, rather tha organizations, eligible for specia service according to their professiona qualifications, and the Merchan Marine Naval Reserve of license officers actually engaged in the seafaring profession who meet certai requirements as to previous service i public or private vessels of the Unite States.

FUNCTIONS OF THE NAVY

By S. P. Fullinwider

Commander, United States Navy, Retired

NAVAL POLICY

The functions of the Navy are indicated, in large measure, by the naval policy. Naval policy is the system of principles and the general terms of their application governing the development, organization, maintenance, training and operation of a navy. It is based on and is designed to support national policies and interests. It comprehends questions of number, size, type and distribution of naval vessels and stations, the character and number of the personnel and the character of peace and war operations. The fundamental naval policy may be stated as designed to maintain the Navy in sufficient strength to support the national policies and commerce and to guard the continental and over-seas possessions of the United States. The general naval policy may be stated as designed to achieve the following purposes: to create, maintain an operate a navy second to none an in conformity with treaty provisions; to develop the Navy to a maximum in battle strength and abilit for control of the sea in defense o the nation and its interests; to organize the Navy for operations i either or both oceans so that expansion only will be necessary in th event of war; to maintain the Marine Corps in strength sufficient t furnish detachments to vessels of th fleet, guards for shore stations, garrisons for outlying positions and t provide expeditionary forces in immediate readiness; to make war efficiency the object of all developmen and training and to maintain tha efficiency at all times; to protec American lives and property; to support American interests, especiall the development of American foreign commerce and the Merchan

Marine; to make foreign cruises for the cultivation of friendly international relations; to encourage and to lead in the development of the art and material of naval warfare; to maintain a definite system of progressive education and training for naval personnel; to determine emergency material needs and to plan for procurement; to inspect systematically all naval activities and materials; to coöperate fully with other departments of the Government, and to encourage civil industries and activities useful in war.

FLEET BUILDING AND MAINTENANCE

In general, the policy is to build and maintain a fleet of all classes of fighting ships of the maximum war efficiency as permitted by treaty provisions and to replace over-age ships under continuing programs. To this end are necessary the preparation and maintenance of designs for new ship construction of all kinds with the establishment of superiority in their class as the objective in the design for all fighting ships. There must be a great radius of action in all classes and such improvements should be incorporated as are sanctioned by good practice and treaty terms. Existing capital ships should be replaced when treaty provisions permit, and the maximum effective tonnage of aircraft carriers, cruisers, destroyers, and submarines permitted under treaty provisions should be built and maintained. Naval aviation should be developed primarily for operation with the fleet, and with this objective it is necessary to build and maintain airplanes to the full complements authorized for aircraft carrier and tenders, battleships, cruisers, and marine expeditionary forces; to determine and develop the types of airplanes and appliances best suited for increased effectiveness of naval vessels, attacks on all classes of naval objectives, and scouting and patrol; to maintain the rigid airships now built to determine their usefulness for naval and other governmental purposes and their commercial value; and to build only such non-rigid airships as may be necessary for training purposes. An adequate mine force prepared for immediate service should be maintained, and such patrol vessels as are required for special services should be provided. Of auxiliaries, which comprise colliers, oilers, supply ships, transports, cargo vessels, tenders, repair ships, hospital ships, survey ships, ammunition ships, and ocean-going tugs, there should be maintained the minimum number needed for training purposes and to ensure the mobility of the fleet. Such submarine rescue ships as may be necessary and the minimum number of naval district craft that will meet shore station requirements should be provided. Detailed plans for rapid acquisition and conversion of merchant vessels to naval use in time of emergency should be maintained.

FLEET OPERATING POLICY

The fleet operating policy provides for the organization of forces afloat so as to obtain maximum administrative efficiency, tactical and strategical flexibility and mobility, decentralization, and unity of command; the operation of forces afloat under balanced schedules designed to secure proficiency, discipline, and contentment of personnel and general excellence as to condition of material, administration, and technical, tactical, and strategical performance; the assembly of the United States Fleet for a period of not less than two months at least once a year; the maintenance in commission, fully manned and in active training, of a maximum number of fighting ships; the maintenance of vessels assigned to reserve in condition for active service; the operation of a naval train sufficient for the upkeep of fighting ships and expeditionary forces; the exercise of economy in expenditures compatible with efficiency; the assignment of suitable vessels for training naval reserves; the operation of the Asiatic Fleet and such other independent forces as may be required, all organized and trained so that in case of necessity they can readily become a part of the United States Fleet, and the operation of survey vessels necessary for the survey of strategical and commercial areas outside the coastal limits of the United States and its possessions.

SHORE ESTABLISHMENT POLICY

A system of outlying naval and commercial bases suitably distributed, developed, and defended is one of the most important elements of national strength. The shore establishment policy contemplates the maintenance of a shore establishment sufficient to sustain the forces afloat in peace and capable of expansion to meet their needs in emergency; the maintenance of a system of naval districts whose administrative organizations are distinct from those of component activities; the retention of only those shore stations that would be of use in war; the further development of the bases in the Hawaiian Islands and the Canal Zone and of two main home bases on each coast, and the maintenance and operation of hydrographic and astronomical facilities necessary for the preparation and dissemination of information of value to the Navy and to other governmental and commercial interests.

PERSONNEL

The personnel policy provides for the maintenance of the personnel at the highest standard and in sufficient numbers to meet the requirements of naval policies; the development and coördination of systematic courses of instruction and training for officers, petty officers, and enlisted men; the assignment of selected officers to duty in foreign countries to broaden and perfect their professional education; the retention of a reasonable excess of petty officers over those necessary for peace-time operation of the Navy; the avoidance of frequent shifting of personnel; the enrollment, training, and maintenance o naval and Marine Corps reserves to meet the requirements of mobilization, and the cultivation of close association of officers of the Navy and Marine Corps with the reserves and assignment of officers to duty with the reserves and to educational institutions.

COMMUNICATIONS

The communications policy has for its objective the maintenance and operation of a naval communication system based on war requirements It purposes to provide and operate direction-finder stations as required to continue the use of naval communication facilities to enhance safety on the sea and in the air; to coöperate with American commercial communication activities so as to enhance their military value in time of national emergency and to safeguard the communication interests of the United States, and to provide and operate a system of radio stations adequate for communication with the fleet and merchant marine and for direct communication with oversea possessions.

INFORMATION POLICY

The naval information policy is designed to accomplish the following purposes: to acquire through naval and other agencies accurate information concerning the political, military, naval, economic and industrial policies and activities of all countries; to select, analyze, and preserve information for ready reference and for historical purposes; to acquire and to disseminate expeditiously appropriate information in time of war; to disseminate appropriate information systematically throughout the naval service; to provide protection against espionage and propaganda, and to keep the public informed of the activities of the Navy as far as it may be compatible with necessary military secrecy.

NAVAL CONSTRUCTION AND EQUIPMENT

By Peter Bain

Naval Construction Consultant

EVOLVING A NAVY "SECOND TO NONE"

A 17-year period of sporadic activity in naval construction came definitely to an end in 1933. The years 1914-18 were responsible for thrusting into the national scheme of things a combination of events and circumstances hardly anticipated, at least to the extent since disclosed. At this distance it is not overstating the position to say that preparedness has not been among our ranking virtues. What constituted the happenings and why officially our naval status has been subjugated and allowed to drift until 1933 may probably be more readily visualized and grasped through the brief summary embraced in the immediately succeeding paragraphs.

The 1916 Naval Program.—Arising from what later developed into a world conflict, this nation in 1916 as a matter of expediency—defense and public welfare—embarked with more or less enthusiasm on a generously-comprehensive, vessel building program, chief among its objectives being the raising and subsequent maintenance of the unit strength and fitness of its Navy to the equal of the most powerful elsewhere. Be this as it may, when the World War came to an end, there apparently came also to an end the 1916 expediency and its related objective—a United States Navy "second to none." As ships of war are not planned, built, equipped, commissioned and passed into service "overnight," so to say, the major portion of the authorized construction program of Aug. 29, 1916, remained uncompleted and much of that awaited opportunity and appropriations even to get started.

Washington and London Conferences.—On Nov. 11, 1921 came the Limitation of Arms Conference at Washington with its vessel scrappings—under construction and service—and its treaty ratio strengths in various directions of 5-5-3 respectively between ourselves, Great Britain, and Japan. Anticipatory of expiration of the Washington Treaty in 1932, a Naval Conference of the above three signatories and representatives of other invited and interested powers convened in London, Jan. 21, 1930. Chief among the accomplishments of the London Naval Conference, embodied also in a treaty, were confirmation of the prevailing ratios, the setting of maximum limits to aggregate tonnages of certain classes of combatant craft—cruisers, airplane carriers, destroyers, and submarines. Their age limits, too, were fixed to determine replacement by new construction. Thus, cruisers and destroyers laid down before Jan. 1, 1920, were to be replaceable sixteen and twelve years respectively after completion. Those laid down after that date were not to be replaceable until after twenty and sixteen years respectively. Submarines were to become over-age and replaceable thirteen years after completion. Keels of replacement destroyers might not be laid down earlier than two years before the vessels they were replacing became over-age. In the case of other craft, a three-year period was set. The London Treaty, due for revision in 1935 and expiration on Dec. 31, 1936, became operative Jan. 1, 1931. To a degree it furnished the logical supplement to that signed at Washington in February, 1922, in the direction of naval construction and equipment limitation. Incidentally, too, for the time being at least, it helped dissipate further the menace of a rising trend towards unbridled competitive building on the part of world naval powers generally. Signatories of the treaty were again ourselves, Great Britain, and Japan.

U. S. Reaction to New Treaty.—Concurrent with the London Treaty becoming operative, in certain categories—battleships, destroyers, and submarines—our vessel strength became subject to a downward scaling of tonnage. On the other hand, renewed opportunity was afforded us to bridge tonnage quota gaps in cruiser and airplane carrier categories. The record shows that we acted more or less promptly on the scaling down requirements but were content with the equivalent of a gesture towards realization of airplane carrier and light cruiser quotas. Elimination from the active battleship roster of the *Florida*, *Utah* and *Wyoming*, and reduction of destroyer and submarine combatant strengths to 150,000 tons and 52,700 tons respectively brought us in line with their relative treaty quotas and to some measure of parity with Great Britain. This degree of parity it will be observed was achieved by filling the scaling down requirement only. With our removal from the active list of three capital ships, Great Britain five, and Japan one, the relative number and aggregate tonnage ratings in that category became: United States, fifteen battleships of 455,400 tons; Great Britain, twelve battleships and three battle cruisers of 473,650 tons; Japan, six battleships and three battle cruisers of 272,070 tons.

Other Parities.—It was disclosed that a fully authorized quota program of 180,000 tons of heavy cruisers divided into 18 vessels of 10,000 tons each, mounting 8-inch guns, was in large part either completed or under construction and progressing steadily to commissioning stage. In a word, indications pointed to but two heavy cruisers being uncommissioned when the treaty expires, the seventeenth being scheduled for service, Jan. 1, 1937—one day beyond treaty expiration—and the eighteenth not earlier than 1938. In the light cruiser category—7,500 or 10,000-ton 6-inch gun equipped—an under-quota and therefore an under-parity gap aggregating probably up to 90,000 tons had still to be bridged on Jan. 1, 1933. Again, our aircraft carrier quota called for upbuilding to the extent of 69,000 tons to which, until 1933, our response was construction of the *Ranger* of 13,800 tons. This vessel, launched Feb. 25, 1933, seems destined for commissioning well ahead of the treaty expiration date. Thus, on Jan. 1, 1933, we still had a leeway of 55,200 tons of aircraft carriers to overcome.

Replacement Provision Lacking.—Our achievement of complete parity with Great Britain before expiration of the London Treaty means much more than a matter of simply subtracting from or adding to an existent condition or a combination of the two as happened. War vessels for the most part are short-lived. Obsoleteness of design, and layout, deterioration of vessel structure, and tear and wear of equipment installed, constitute in a general way and represent *en bloc* a mass of detail not only susceptible to the ordinary and easily regulated species of ailments but to others that nothing short of increased and increasing expense and watchfulness can overcome and, not improbably, only mitigate for the time being. Such being the every day experience, replacement provision becomes of equal importance with definitely prescribed shortage additions. On Jan. 1, 1933, we had a huge replacement as well as shortage contribution to make to British parity. For example, all but four destroyers became over-age during the past twelve months and these become over-age in 1934.

Disarmament Possibilities. — The situation depicted in the foregoing, naturally was not permitted to prevail without challenge and outspoken criticism. On the contrary, both have been consistently in evidence ever since the Washington Treaty was drawn and signed. Notwithstanding that the pros and cons do not enter into this treatise, it falls to our notice that some degree of reasonableness did dictate and sustain unflinchingly the policy that ultimately contributed to what Mr. Swanson, Secretary of the Navy, designates as ''relative naval strength seriously impaired'' and that, following the Washington Treaty, delayed our embarkation on an orderly construction program of realization and maintenance of treaty quotas. Apparently, however, we became disarmanent-minded with the signing of the Washington Treaty of February, 1922, holding the view and subscribing to the tenet that it was at once economically sound and humanely desirable. There was the further implication that scaling down to our status was the logical course to pursue. Other powers, among them our treaty co-signatories, failed to focus on that viewpoint. Our economic and humanitarian tenets they simply ignored and, as it were, to erase scaling down as either a near-by or far-off prospect, proceeded forthwith towards development of orderly programs of new construction—additional and replacement—within treaty limits if so bound and on a wholly self-constituted basis if treaty free. It would thus appear that alone, by precept and example, we made a scaling down crusade.

New Course Set.—Naturally any disarmament agreement must be on a relative basis, whether of scaling down or building up. With other powers persistently and progressively pursuing the latter course, a halt had to be called to ours sooner or later and bearings taken. Early in 1933 this took place. Analysis of our status, left but one choice—that of immediate embarkation upon an orderly building program designed to bring our combatant, floating equipment up to treaty quotas. Promptly, too, the decision was converted into action, the latter already evidencing both form and substance. For example, the first NRA keel, that of the submarine *Shark*, was laid Oct. 24 at the Groton (Conn.) yard of the Electric Boat Corporation, and on Dec. 18 at the Camden, N. J., yard of the New York Shipbuilding Corporation keels of four 1,850-ton destroyer leaders were also laid. Keel of the *Tarpon* sister submarine to the *Shark* was laid Dec. 22. Allocation June 16 by President Roosevelt of funds totalling $238,000,000 from the Public Works Section, National Industrial Recovery Act, for the construction and equipment of 37 naval vessels—one group of 32 and another of 5—not only marked a complete reversal of policy but constituted the outstanding event of the year in Navy circles.

New Construction Scope and Purpose.—Not since 1916 when President Wilson sought through initiation of a similarly comprehensive program of new construction, to bring the Navy to the pinnacle of front rank sea power has comparable impetus been given and positive action taken for the like purpose. It apparently is the President's opinion that we should not only possess a powerful and efficient navy but that work should be provided through new naval construction for a large section of our citizens still unemployed. In this latter connection, the Navy Department is understood to have expressed its willingness to accept early delivery of auxiliaries standard fittings, and other material with a view to the more immediate distribution and creation of jobs. The new program in addition to arresting the tendency towards further sapping of our naval strength provided a long overdue and much needed stimulus to our private shipbuilding industry; quite one-half of the new construction having been so allocated. It goes without saying that permanent injury to this vital phase of our economic structure would imply serious impairment of our national defense as well as that of our maritime and general economic wellbeing. Even with the 1933 new construction included, we still must build a further total of 101 ships to be at full treaty strength on Dec. 31, 1936.

NEW CONSTRUCTION PROGRAM

The complete 1933 new construction program called for 37 keels to be laid, four of which are destroyers authorized in 1919 and one a 10,000-ton, 8-inch gun cruiser authorized in 1929; all five to be built in private shipyards. Of the group of 32 ships private shipyards will build four destroyers of the 1,850-ton class, six destroyers of the 1,500-ton class, two aircraft carriers of 20,000 tons each, two light cruisers of 10,000 tons each, and two submarines of 1,317 tons each. The remaining sixteen vessels have been distributed among our various navy yards, the detail embracing two light cruisers, ten destroyers, two gunboats, and two submarines. Of the new craft, some are additions and some replacements. Dependent on receipts of material, all of the vessels were expected to be in process by the year end. One or more of the light cruisers will probably be of a type hitherto unknown on the seas—cruiser-aircraft carriers armed with 6-inch guns and capable of housing a dozen or more airplanes. Naval officers visualize such craft as potential scouting weapons. In the event that the World Disarmament Conference at Geneva cuts quotas below those now prevailing, President Roosevelt proposes to get authority from Congress to modify as necessary the new program content.

Within a week after the President had designated an allotment of $238,000,000 from the NRA Public Works Fund for naval construction and equipment, specifications were drawn and bids invited. Thirty days later, bids were opened and on Aug. 3, again within a week, came announcement of awards of 21 ships to be built in private yards and the allocation of 16 others to the various navy yards. The sheaf of contracts, approved by the President the day before, constituted the greatest naval construction program *en bloc* ever given right-of-way in our history. Awards to the lowest responsible bidder in each case are detailed as follows:

Yorktown and *Enterprise*, aircraft carriers of 20,000 tons each to Newport News Shipbuilding and Dry Dock Co., Newport News, Va., for the stated price of $19,000,000 each, subject to adjustment for changes in cost of direct labor and material within certain definite limitations.

Vincennes, heavy cruiser of 10,000 tons and 8-inch gun armament to Bethlehem Shipbuilding Corporation, Quincy, Mass., for the fixed price of $11,720,000 without adjustment for changes in labor and material costs. This vessel cannot be laid down until early 1934 and cannot be commissioned until Jan. 1, 1937.

Savannah and *Nashville*, light cruisers of 10,000 tons each and 6-inch gun equipped, to New York Shipbuilding Corporation, Camden, N. J., for the fixed price of $11,677,000 without adjustment for changes in labor and material costs.

Brooklyn, light cruiser of 10,000 tons and 6-inch gun equipped, to New York Navy Yard.

Philadelphia, light cruiser of 10,000 tons and 6-inch gun equipped, to Philadelphia Navy Yard.

Charleston, gunboat of 2,000 tons, for patrol service in Chinese waters, to Charleston, S. C. Navy Yard.

Erie, gunboat of 2,000 tons, for patrol service in Chinese waters, to New York Navy Yard.

Porpoise and *Pike*, submarines each of 1,317 tons, to Portsmouth, N. H. Navy Yard.

Shark and *Tarpon*, submarines each of 1,317 tons, to Electric Boat Corporation, Groton, Conn., for the fixed price of $2,770,000 each without adjustment for increases in costs of labor and material in accordance with builder's design. Price is on the basis of the main propelling machinery being supplied by the Government and installed by the contractor.

Monaghan, destroyer authorized in 1916 and under construction at Boston, Mass. Navy Yard.

Aylwin, destroyer authorized in 1916 and under construction at Philadelphia Navy Yord.

Porter, *Selfridge*, *McDougal*, and *Winslow*, destroyers of 1,850 tons each to New York Shipbuilding Corporation, Camden, N. J., for the fixed price each of $3,775,000 without adjustment for changes in labor and material costs.

Phelps, *Clark*, *Moffett*, and *Balch*, destroyers each of 1,850 tons to Bethlehem Shipbuilding Corporation, Quincy, Mass., for the fixed price each of $3,896,000 without adjustment for changes in labor and material costs. These vessels are an authorization of the Act of Aug. 29, 1916.

Mahan and *Cummings*, destroyers of 1,500 tons to United Dry Docks Inc., New York for the sum of $3,400,000 each.

Drayton and *Lamson*, destroyers of 1,500 tons to Bath Iron Works, Bath, Me. for the sum of $3,429,000 each.

Flusser and *Reid*, destroyers of 1,500 tons to Federal Shipbuilding and Dry Dock Co., Kearny, N. J., for the sum of $3,410,800 each.

Cassin and *Shaw*, destroyers each

of 1,500 tons to Philadelphia, Pa. Navy Yard.

Tucker and *Downes*, destroyers each of 1,500 tons to Norfolk, Va. Navy Yard.

Cushing and *Perkins*, destroyers each of 1,500 tons to Bremerton Navy Yard, Puget Sound, Wash.

Smith and *Preston*, destroyers each of 1,500 tons to Navy Yard, Mare Island, Calif.

LONG RANGE PROGRAM PLANNING

There is some prospect that high ranking officers of the Navy will seek from the 74th Congress authorization of a long-range-planned construction program modelled on the lines of those in vogue in Great Britain. Chief among the objectives envisaged is the laying down of an unostentatious number, class, and tonnage of ships every year in contradistinction to the embarkation upon what may be termed major undertakings at intervals widely apart, and of doubtful value as regards continuity of progressive policies. With the proposed change authorized and in effect, claim is made that it would be possible to have the cardinal as well as the pivotal elements of the whole fleet completely modern at all times. It is further claimed that stocking-up on ships liable to out-of-dateness ahead of being outworn would cease to be a contingency demanding recognition as now. The plan to be submitted to Congress is understood to aim at bringing the appropriations for initial and replacement construction together at authorization; thus, if Congress authorizes construction of a new type destroyer whose age limit is placed at 15 years, two vessels, as it were will be covered by authorization and appropriations—the original and that of its replacement 15 years later. It has been suggested too that many authorizations for construction of vessels carrying aircraft should include provision for the authorization and construction of their complements of machines.

CONSTRUCTION OF CRUISERS

Carried forward from 1932 and for the most part unaffected in the matter of augmented funds from any source to stimulate completion, seventeen vessels were in varying stages of construction on July 1, the opening day of the fiscal year, 1934. Of the total, six were heavy cruisers—*New Orleans*, launched April 12; *Minneapolis*, Sept. 6; *San Francisco*, March 9; *Tuscaloosa*, Nov. 15; *Quincy*, keel laid Nov. 15; *Astoria*, launched Dec. 16. Also of the total were the aircraft carrier *Ranger*, launched Feb. 25; eight 1,500-ton destroyers at varying stages of completion; two 1,130-ton submarines —the *Cachalot* launched Oct. 19 and commissioned Dec. 1, and the *Cuttlefish*, launched Nov. 21. The heavy cruiser *Portland* was completed and placed in commission Feb. 23. Despite the contracts awarded through the President's program, one vessel of authorization of Aug. 29, 1916—a transport—remains to be constructed "if desired and if funds are obtainable." Of the program authorized by the Act of Feb. 13, 1929, there remains to be constructed when funds are secured the last of our treaty quota of 10,000 tons, 8-inch gun equipped heavy cruisers. It cannot, however, be laid down until Jan. 1, 1935. Of the 1929 program, five light cruisers remain, no funds for the purpose being so far in sight.

NEW SHIP DESIGN

A marked feature of the activities of the Bureau of Construction and Repair was that of new ship design, the work on hand together with that immediately ahead involving to all intents and purposes the preparation of seven such projects; more even than were developed in world war time. In the spheres of research and preliminary design, the experimental model basin with its related activities played an important part. The need grows for a completely new and enlarged establishment embracing several basins modernly equipped, also ample laboratory accommodation of equally modern equipment as the complement.

VESSEL AND PLANT MAINTENANCE

A policy of restriction of alterations to the end that limited appropriations might be expended primarily on repairs only may be said to have constituted the chief feature of the year's program of vessel equipment maintenance. The fleet as a whole continues in a fairly satisfactory condition of material readiness. Of alterations carried out on various ships not a few bear the impress of being of considerable military value. Plant equipment in navy yards continues in fairly satisfactory condition as regards peace-time requirements. Due, however, to curtailment of expenditures for replacements in the past two years, equipment has deteriorated at a rate much in excess of normal; thus, increased expenditures will later be required for its modernization.

OVERHAUL AND REPAIR UNDER NEW PLAN

On May 8 announcement was made that in order to fulfil its part in the drive for national economy the Navy Department had tentatively decided to bring the entire fleet within the Rotating Reserve plan; in other words, one-third of the vessels would be removed temporarily from full commission service. Under the arrangement, a complete cycle for each unit would be six months in rotating reserve and twelve months on the active list. In substance, the decision supplied the complement to similar action taken the year previous relative to destroyers and submarines. Confirmation order of a week later made the new plan effective July 1 with expiration set at Jan. 1, 1936. On May 24, the confirmation order was cancelled by the Secretary of the Navy. He declared that the Navy Department would offset the necessary economies by continuing to operate on the old plan of increasing efficiency along-with decreasing costs. It appears that, to begin with, the rotating reserve plan indicated a saving of $18,000,000. Later it was revealed that the possible saving was more than two-thirds under the original estimate or about $5,500,000 only.

On June 9, a new plan under which fleet operations would be drastically curtailed was announced by the Navy Department covering the fiscal year 1934. It provided for all vessels of the fleet to spend at least three months in navy yards for overhaul, repairs, and maintenance, plus such additional time as may be necessary for ships' personnel to execute all work within their capabilities. Thus, enlisted men of the fleet will be utilized to the fullest extent possible in the repair and overhaul of their respective craft. The fleet too, as such, will do as little steaming as possible; in other words, operation will be subordinated to material readiness. By way of supplement to the change of plan, Secretary Swanson intimated that money enough would be forthcoming to maintain the fleet, and that funds were available to equip the aircraft carrier *Ranger* due for commissioning in the late Spring of 1934.

NAVAL CONSTRUCTION ABROAD

Being a party to and bound by naval treaties drawn up and signed at Washington and London respectively, the United States has something more than an academic interest in foreign naval construction activities. The accompanying data, believed to be generally reliable indicates briefly the situation existent in those countries of our treaty co-signatories towards the year end.

Great Britain. — The new naval construction program of Great Britain for 1933 included four cruisers—one probably of 7,000 tons and three of 5,200 tons each—one squadron destroyer leader and eight smaller destroyers, three submarines, three minesweeper sloops, one convoy sloop, one coastal sloop, and certain small craft such as lighters and defense vessels. Contract for the convoy sloop—*Bittern*—was placed Oct. 5, or six months earlier than first planned. The cruisers, final instalment of the replacement program authorized at London, are due for completion by the end of 1936. Naval estimates showed an increase of $11,800,000 over those of the year previous. Later, the program was changed by substituting for the four cruisers two of 9,000 tons each and one only of 5,200 tons. The 9,000-ton vessels, it is understood, will be generally different from even the most modern of their category now in commission. They will be heavily armored, will mount probably twelve 6-inch guns, be of low hull surface above the waterline and, comparatively, will have considerably enlarged radius of action. Significant was the announcement Nov. 23 that all three cruisers would be built in private shipyards, "because Government dockyards will have all the work they can do." In 1936, British cruisers aggregating 62,500 tons become obsolete and 60,500 tons of destroyers reach the age limit. Naval estimates being drawn up towards the end of 1933 indicated a program for 1934 which would provide six cruisers of 9,000 tons and 5,200 tons designations. Other categories likely to be included in the program are one flotilla leader, twelve destroyers, three submarines, and a number of smaller vessels. It is believed that the initial stage of a huge replacement program will also find provision in the coming estimates. Taking cognisance of its 1933 building plans only, Britain's deficit relative to treaty strengths would be about 64 ships.

Japan.—Announcement was made Dec. 4 that funds were then available for the second supplementary program that will bring the Japanese fleet up to full treaty strength. The program comprises two B class cruisers about 625 ft. long, 59.6 ft. beam, 33 knots speed, 8,500 tons displacement, and mounting fifteen 6-inch guns; two aircraft carriers of 10,000 tons each, fourteen destroyers, and four submarines. Two or more seaplane carriers of 10,000 tons each will be begun as will be two tankers of 15,000 tons each, one repair ship, and sixteen torpedo boats. Besides having provided for her full treaty quotas, Japan has served notice that at the next conference she will not be satisfied with anything less than parity with the United States and Great Britain. Her fundamental demand appears to pivot on a fleet powerful enough to keep any hostile navy from approaching the Far East too closely.

TREATY NAVY AUTHORIZATION TO BE SOUGHT

It seems the fitting climax to a year in many respects notable that almost on the eve of its closing announcement should be made of the Navy Department's intention to seek from Congress authorization to build up to London Treaty strength or other arms agreement to which the United States might become a party; also, that authority be given the President to maintain the fleet at that strength. As a construction program it has in view replacements as well as quota-complement additions; altogether, 101 ships according to the secretary of the Navy. With 1939 set for realization of treaty quotas, some twenty vessels will have to be laid down annually and built progressively during the intervening fiscal years. Total cost of the program inclusive of equipment, and airplanes where called for, is tentatively estimated at $516,000,000. Embraced in the vessel detail are sixty-four destroyers and destroyer leaders, thirty submarines, five cruisers of 6-inch gun armament, one cruiser of 8-inch gun armament, and one aircraft carrier.

NAVAL AERONAUTICS

By E. J. King

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GENERAL

Operation.—The fiscal year 1933 has been an important as well as an exacting one in the history of naval aviation. The close of the previous year saw the Navy equipped with a complement of modern aircraft with which to carry out its missions with the Fleet. The general plan for the operation of naval aircraft for the past year, as in previous years, provided for all tactical units, except the majority of those of the Marine Corps, to be assigned to the active Fleet. The shore establishment included only airplanes required for the training of aviators, regular and reserve, and a small number for administrative and experimental use. Scouting, torpedo and bombing, observation and fighting planes were carried on the aircraft carriers *Lexington*, *Saratoga* and *Langley*, while catapults on battleships and cruisers continued to permit the operation of scouting and observation planes at sea.

Equipment and Personnel. — On June 30, 1933 the Navy had 919 service airplanes on hand exclusive of those of the Naval Reserve. On the same date the regular Navy had 826 officer pilots and 337 enlisted pilots; the Marine Corps had 103 commissioned pilots and thirty enlisted, the net increase of officer pilots during the fiscal year was 25 while the net decrease of enlisted pilots was twenty. At the close of the year the Naval Aeronautic Organization was short 183 heavier-than-air officer pilots of the regular Navy. Indications are that this shortage will not be made up until about 1945 of Naval Academy graduates are continued to be commissioned only as necessary to maintain the total commissioned officer strength that is at present allowed for the whole Navy. Since this situation will become even more serious upon any expansion of naval aviation, remedial action is now being studied by the Navy Department.

Economics.—The year was marked by unusual and drastic economies effected throughout naval aviation and, as a result, operations were on a restricted scale. This was due to the considerably reduced appropriation available, to additional extreme economy measures enacted, and to a severe limitation on cash withdrawals from the Treasury for the fiscal year 1934. The immediate effect of this limitation on cash withdrawals was to restrict materially the total amount of those obligations which were being made in 1933 for payment in 1934. As a result, many projects involving procurement of aeronautical material and improvements or repairs at air stations, had to be postponed or abandoned altogether. Due to these various restrictive measures, only $23,829,387 was obligated from the total of $25,245,420 appropriated for 1933 under ''Aviation, Navy.'' Under the stringent economy measures necessitated by the depression, the Navy may be justly proud of its aviation record, not only in operations, but in its steady and continued progress.

AIRCRAFT CARRIER TONNAGE

Limitation.—There was no change in our country's operating aircraft carrier tonnage during the year, and will be none until the commissioning of the *Ranger*, scheduled for May 1, 1934. Under the Arms Limitations Treaties, the United States and Great Britain may build 135,000 tons of aircraft carriers. Of the three carriers in our Navy, the *Langley* alone is of an ''experimental'' type and may be replaced. The other two carriers, the *Lexington* and *Saratoga*, utilize a total of 66,000 tons of our allowed quota of tonnage while providing but two landing decks. Great Britain has five excellent carriers to our two. This lack of parity is even more acute when it is realized that three of the British carriers are classed as ''experimental,'' and can be scrapped and replaced within the tonnage limits at will.

Comparisons.—We have used 13,800 tons in the *Ranger*, which is now undergoing completion, so that 55,200 tons remain in the carrier category. By scrapping the *Langley* (a vessel whose age and slow speed reduces her usefulness as an adjunct of the Fleet), we could build three more carriers and have a total of six. On the other hand, Great Britain need build only two more and then will have a total of seven modern carriers. This means that she will have seven landing fields at sea against our six.. Japan, which has built almost to her allowed limit, has four landing decks.

NAVAL PLANES

Plane Program. — Although the shortage of aircraft carriers is serious, the present condition as enacted by Congress of limiting the maximum number of naval planes to 1,000 is even more so. Since the initiation of the 1,000-plane program in 1926, fifteen cruisers, the aircraft carrier *Ranger*, and the airship *Macon* have been authorized for addition to the Navy. These ships carry a total of over 200 airplanes, and no provisions have been made for their procurement. In other words, increases in our surface vessels have been made, but no additional aircraft have been authorized for them. This is a most serious condition, as it results in forcing the Navy to reduce the present activities authorized under the 1,000-plane program by the airplanes needed for this new construction. In order to remedy this condition and so provide the Navy with the number of aircraft so essential for the National Defense, it will be necessary to provide for an increase in the 1,000-plane program.

THE RANGER

Progress on the construction of the Navy's fourth aircraft carrier at the Newport News Shipbuilding and Drydock Company has been marked. The launching took place on February 25, 1933, at which time the ship was christened the *Ranger* by Mrs. Herbert Hoover, thus becoming the seventh vessel of the Navy to bear the name, first made famous in naval history during the Revolutionary war by the exploits of the illustrious John Paul Jones in command of the original *Ranger*. During the construction, underway in the past year, a high degree of modernization of design, based on the Navy's recent extensive operating experience with the *Lexington* and *Saratoga*, has been incorporated in the *Ranger*. With the commissioning of this vessel in May, 1934, the Navy will have its first aircraft carrier, designed and constructed as such, the *Langley* being a converted collier, and the *Saratoga* and *Lexington* being originally designed as battle cruisers.

AERONAUTICAL EXPERIMENTATION

Plane Tests.—Consistent with the American military policy of utilizing limited appropriations to build a nucleus for defense, concentrating on the development of a few units of the most modern equipment for operation by a small peace-time force, and depending upon the nation's resources to meet a national emergency, the Navy experienced a most active period of aeronautical experimentation during the period under review. Airplanes designed in accordance with new Bureau of Aeronautics structural design procedures have justified the confidence placed in these procedures by passing severe flight tests aimed at simulation of the worst conditions likely to be met during service operation. Although eleven less than in the previous year, the flight test section at the Naval Air Station, Anacostia, D. C., conducted extensive performance and acceptance trials on 25 different types of planes built under contract for the Navy, to determine the types best suited for Naval Aviation. In addition to the tests made at Anacostia, others were conducted at the Naval Air Station, Norfolk, the Naval Aircraft Factory, Philadelphia, the Naval Proving Grounds, Dahlgren, Va., and the Washington Navy Yard. In general, these trials required the determination of performance charactaristics, catapult tests, water tests, night flying tests, diving tests, and arresting gear tests, these latter for use in connection with aircraft carriers. Additional tests included those on radio installations, propellers, power plants, armament, and miscellaneous equipment.

Speed.—Progress in high-speed development of aircraft has been made, but, due to curtailed expenditures, this country is far from being abreast of foreign powers in this important phase of aviation. Fast two-seater fighters with retractable landing gear have been developed and assigned to the Fleet, and the development of tactics for this new type of combat plane has been vigorously carried out.

Engines.—Constant effort is being made to improve the characteristics of naval aircraft, particularly in regard to speed, range, and striking power. Since improvement of performance is largely dependent upon improvements in power plants, vigorous prosecution of an experimental development program for aircraft engines was carried on during the year. The development of service type engines has proceeded with definite success in increasing the power output, reliability, and general serviceability. The two-row radial aircooled engine has now reached the stage where it may be relied upon as a satisfactory service type power plant.

Materials and Equipment. — Improved materials and equipment are under continuous development and service tests. Gratifying progress has been made in the quality and serviceability of such items as fire extinguishers, flight clothing, parachutes, life belts, life rafts, safety belts, ordnance equipment, aircraft instruments, aerological instruments, and radio installations.

MAINTENANCE

Naval aviation reached new high watermarks in maintenance perfection in 1933. A standard cost accounting system was established at the various overhaul bases, the operation of which has resulted in substantial savings of time and material, reduction of costs, and increased efficiency. The service of supply has been greatly improved, with resultant economy and prompter service. During the latter part of the fiscal year, assembly and repair officers from the continental air stations made an inspection trip of commercial aeronautical plants and army overhaul depots. The lessons learned at these non-naval establishments resulted in the adoption of many specific points of improvement at navy stations.

RESEARCH

The National Advisory Committee for Aeronautics has continued to give invaluable assistance to the Bureau of Aeronautics by conducting aircraft research investigations. Under the present highly satisfactory arrangement, the Committee does practically all of the aerodynamic and other fundamental research required by this Bureau. Many other non-naval governmental departments have rendered valuable assistance to the Bureau of Aeronautics, chief among which are the army, the Bureau of Standards, and the Department of Commerce.

EDUCATION AND TRAINING

In continuance of its policy to make naval aviation one of the best educated branches of the naval service, approximately 50 officers underwent instruction in aviation specialities during the year, courses being followed in such subjects as aeronautical engineering, ordnance, and communications at the Naval Academy and certain highly accredited civilian colleges. In addition, aviation training stations and aviation service schools were maintained and operated at Pensacola for heavier-than-aircraft instruction, and at Lakehurst for lighter-than-aircraft training. Towards the close of the fiscal year several aviation officers were qualified at Pensacola by Lieutenant Commander R. S. Barnaby, this country's first glider soaring pilot, to instruct in glider training. With two Franklin gliders, these instructors put four officer students, none of whom had ever had any previous aviation training, through a short course in gliding, as an investigation into the feasibility of giving future elimination and preliminary flight training in gliders rather than in powered aircraft. This innovation by the navy of inducting men into flying through motorless aircraft is still in the experimental stage, and, though thus far it has its disadvantages as well as many advantages, it will be pursued until its definite worth has been demonstrated.

NAVAL AND MARINE CORPS RESERVE

The progress made by Naval and Marine Corps Reserve Aviation was continued; and, notwithstanding the serious blow to morale due to the economy reduction in training funds, the aviation training of inactive personnel was carried on in a more satisfactory manner than in previous years. For the first time all Reserve Bases carried on major overhaul of aircraft and engines, which was not only adopted as an economy measure, but also provided excellent ground training. Several Reserve fields were improved during the year to permit night flying, which now makes all Reserve Bases available for undertaking this important phase of training. As one example of the efficiency of the Aviation Reserve, a unit from Philadelphia and another from Brooklyn were mobilized on the night of the *Akron* crash and were ready at daylight to begin search operations, continuing thereafter from daylight to dark for several days. Some 438 Naval Reserve aviators and 60 Marine Corps Reserve aviators received 15-day periods of active duty and aviation training, many of these reserve officers performing this duty without pay. Forty-one Naval Reserve aviators did one year's active training duty with the aircraft squadrons of the Fleet, while 12 Marine Corps Reserve aviators performed a similar period of duty with the regular aircraft squadrons of the Marine Corps. At the close of the fiscal year, Reserve Aviation had 158 serviceable airplanes on hand.

LOSS OF THE AKRON

In lighter-than-air a catastrophe befell the Navy in the loss of the U. S. S. *Akron* with 73 officers and men, including Rear Admiral William A. Moffet, then Chief of the Bureau of Aeronautics. This accident, which occurred on April 4, 1933, is one of the greatest peace-time disasters ever suffered by the Navy. The subsequent investigations by a Navy Court of Inquiry and a joint Congressional Committee showed that the disaster was due to no fault in the design or construction of the airship. As soon as funds become available, it is the intention of the Bureau of Aeronautics to continue the investigation of large airships.

THE DIRIGIBLE MACON

In the same month that the *Akron* was lost, her sister ship, the U. S. S. *Macon,* was completed and began trial flights. She was later temporarily transferred to the Naval Air Station at Lakehurst for further tests, and in the middle of October, 1933, she was transferred to her permanent base at the new Naval Air Station at Sunnyvale, Calif. While essentially a duplicate of the *Akron,* a number of improvements and refinements were incorporated in the *Macon,* with the result that she is a lighter and speedier airship. The *Macon* will have the squadron of fighting planes from the *Akron* assigned to it. These are specially designed, high-performance, combat planes, so adapted that they can operate from the dirigible, facilities being provided for their hooking-on, dropping-off, and housing in the airship while it is in flight. While basing at Sunnyvale, the *Macon* will be assigned to the Fleet, and it is felt that definite proof of the naval value of this type of aircraft operated in conjunction with the Fleet will be further demonstrated. On April 12, 1933, the Naval Air Station at Sunnyvale was placed in commission. This station is the Navy's first west coast airship base and is the most up-to-date and perfect airship operating unit in the world.

NAVAL EDUCATION

By Carroll Storrs Alden

Professor, U. S. Naval Academy

THE UNITED STATES NAVAL ACADEMY

This institution is the means of entrance to the Service for nearly all officers of the line as well as for a large number of the Marine Corps and of the Supply Corps. Each United States Senator and Representative may have three midshipman appointees at the Naval Academy. Candidates on being duly nominated must qualify as to age (16 to 20) and pass the prescribed mental and physical examinations. The mental requirements for admission and the four years curriculum may be compared with those of the leading scientific or technological schools. The academic studies are divided between nine departments, Seamanship and Navigation, Ordnance and Gunnery, Marine Engineering (including mechanical drawing and naval construction), Electrical Engineering (including chemistry and physics), Mathematics, English and History, Languages, Economics and Government, and Hygiene. In the first four, which are distinctly professional, there is also practical work and drills. Besides the drills that form a part of the daily routine during the academic year, there are those that constitute the chief interest in the summer instruction. The midshipman's first summer is spent at the Naval Academy, when he is taught infantry drill, rowing, swimming and firing on the rifle range. His third summer, also at the Academy, is devoted to aviation, especially to heavier-than-air craft; in addition to the ground work instruction, he spends ten or more hours in flight, and has charge of almost everything except the handling of the controls. The second and fourth summers he spends away from the Academy on the practice cruise. The battleship last summer assigned for this was the *Wyoming,* and the foreign port visited was Funchal, Madeira.

In addition to the departments that have been mentioned are the Executive and the Physical Training Departments; the former having charge of infantry drills and seeking to inculcate the fundamental ideas of leadership and the exercise of command, and the latter teaching swimming, correct posture, symmetrical physical development, as well as directing athletic sports. By a recent revision of the Naval Academy curriculum the time allotted to professional courses has been decreased from 44.8 per cent to 37.2 per cent, and that allotted to cultural courses increased from 21.6 per cent to 31.6 per cent. This has given opportunity for entirely new departments, economics and government, which have offered courses for the first time during the past year; also it has resulted in an increase of time allotted to courses in English and History. The faculty of the Naval Academy is composed of officers, drawn from the fleet and detailed for two or three years as administrative officers and instructors, and also of civilian professors, who have a fair degree of permanency. Public lecture courses bring university professors and others prominent in history, economics and government to address the midshipmen. Above all else the Naval Academy is a school of leadership. The aim is to develop military and personal character, to train midshipmen to undertake whatever task is assigned, and to do it intelligently, cheerfully and well. Advancement by selection in the Navy operates also in the Naval Academy and that from the very beginning. Of the young men that take the entrance examinations only one out of every three qualifies mentally. The physical examination then takes its toll, causing the further rejection of about one out of every eight. The casualties during the four years course have varied during recent years from 29.1 per cent to 42.8 per cent; for the class graduated in June, 1933, it was 31.9 per cent. According to the present Congressional provision, only half of the class graduated may be commissioned as line ensigns, and they are selected according to standing; in addition, a certain number may be assigned to fill vacancies in the Marine Corps and Supply Corps. Last June, for the first time, all midshipmen on graduation were awarded the degree of Bachelor of Science.

GENERAL LINE SCHOOL; GRADUATE SCHOOL INSTRUCTION

When officers have completed the first seven years of sea duty, the Navy seeks to detail them all to the General Line School. This is to prepare officers for duties as heads of departments aboard ship and for general executive duties. The basic course for all, in professional subjects as well as mathematics, administration, and international relations, is supplemented by that in which the officer is majoring, such as marine engineering, ordnance and gunnery, or communications. A limited number continue at the school for a second year of specialization, and a still more limited number are given a third year at various graduate schools or universities. Aside from this a few are sent to a university for an advanced course in international law. Certain ones are designated to take a three-year law course at some law school. A few especially qualified are sent to the Orient for a three-year course in the Japanese language or Chinese. And there are, further, a large number that are given brief instruction in one of many specialties such as deep sea diving, chemical warfare and aerology.

THE NAVAL WAR COLLEGE; JUNIOR AND SENIOR COURSES

The Naval War College at Newport instructs each year a junior class, composed of senior lieutenants and lieutenant commanders, in the minor operations of war, and a senior class, composed of commanders and above, "in handling and maintaining large fleets over extended theaters of war and in fleet engagements." The latter course "embraces a study of strategy, tactics, logistics, command, policy, and international law." Besides these two courses, there is the Naval War College correspondence course. This is offered to officers in the fleet and at shore stations and is designed to give them instruction in War College methods.

INSTRUCTION OF ENLISTED MEN

By reason of the general economic conditions prevailing in the world outside, the percentage of reenlistments in the Navy has been extraordinarily high, having reached during the past year 93.25 per cent. This has reduced the percentage of first enlistments to a correspondingly low figure, and of the applicants only one out of 28 has been accepted. Of the new recruits 88.1 per cent have completed one or more years of high school, showing unusually high mental qualifications. The instruction of recruits in infantry drill, swimming, rowing, personal cleanliness and care of clothing, has proceeded as usual except that the period of training has in many particulars been shortened because of higher intelligence. Most of the recruits, according to their qualifications and promise, are given the opportunity of attending special schools. Furthermore, the Navy offers to all men afloat or ashore what is similar to correspondence courses. Study is entirely optional, but men taking advantage of this have become electricians, machinists, radio operators, painters, coppersmiths, etc., gaining what is of great value to them in the Navy and in civilian life at the close of their enlistment.

THE IMPROVED OUTLOOK

During the period of reduced appropriations for maintenance and reduction of pay for both officers and enlisted men, the Navy has still maintained high standards of efficiency. But in the country at large the need of more ships has been recognized. The Secretary of the Navy says in his Annual Report (December, 1933): "The outstanding event of the year for the Navy was the allocation of funds from the National Industrial Recovery Act by the President for the purpose of constructing and equipping 32 naval vessels. No such building program has been undertaken by this country since that of the year 1916 when President Wilson sought to bring the Navy of the United States to a position inferior to none." This may seem primarily to concern the education of the American public, but in time it must be followed by a considerable extension of education for both officers and enlisted men.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

SERVICE SOCIETIES

AMERICAN LEGION, National Headquarters, 777 N. Meridian Street, Indianapolis, Ind.

AMERICAN REMOUNT ASSN., 810 18th Street, N. W., Washington, D. C.

ARMY ORDNANCE ASSN., Mills Bldg., 17th St. and Pennsylvania Ave., Washington, D. C.

ASSN. OF MILITARY SURGEONS OF THE UNITED STATES, Army Medical Museum, Washington, D. C.

CHEMICAL WELFARE SERVICE, Edgewood Arsenal, Maryland.

MILITARY TRAINING CAMPS ASSN., 19 W. 44th Street, New York City.

NAVY LEAGUE OF THE UNITED STATES, 1749 E Street N. W., Washington, D. C.

QUARTERMASTERS' ASSN. OF THE UNITED STATES, 923 15th Street, N. W., Washington, D. C.

RESERVE OFFICERS ASSN. OF THE UNITED STATES, 1653 Pennsylvania Ave., N. W., Washington, D. C.

SOCIETY OF AMERICAN MILITARY ENGINEERS, 808 Mills Bldg., Washington, D. C.

SOCIETY OF NAVAL ARCHITECTS & MARINE ENGINEERS, 29 W. 39th Street, New York City.

U. S. CAVALRY ASSN., 1624 H Street N. W., Washington, D. C.

U. S. FIELD ARTILLERY ASSN., 1624 H Street N. W., Washington, D. C.

U. S. INFANTRY ASSN., 1115 17th Street N. W., Washington, D. C.

UNITED STATES NAVAL INSTITUTE, Annapolis, Md.

PATRIOTIC AND HEREDITARY

COLONIAL DAMES OF AMERICA, 421 E. 61st Street, New York City.

DAUGHTERS OF 1812 U. S. NATIONAL SOCIETY, 108 Iona Ave., Narberth, Pa.

FOUNDERS AND PATRIOTS OF AMERICA, Lexington Ave. and 48th St., New York City.

GENERAL ORGANIZATION, SONS OF CONFEDERATE VETERANS, 609 Law Bldg., Richmond, Va.

NATIONAL SOCIETY OF THE DAUGHTERS OF THE AMERICAN REVOLUTION, Memorial Continental Hall, Washington, D. C.

MILITARY ORDER OF FOREIGN WARS OF THE U. S., 140 Nassau Street, New York City.

MILITARY ORDER OF THE LOYAL LEGION, 140 Nassau Street, N. Y. C.

MILITARY ORDER OF THE WORLD WAR, 30 West 44th St., New York City.

NATIONAL SECURITY LEAGUE, 45 West 45th Street, New York City.

NATIONAL SOCIETY OF THE SONS OF THE AMERICAN REVOLUTION, 1227 16th St., N. W., Washington, D. C.

NAVAL AND MILITARY ORDER, SPANISH-AMERICAN WAR VETERANS, 184 State House, Boston, Mass.

PILGRIM SOCIETY, Pilgrim Hall, Court Street, Plymouth, Mass.

SOCIETY OF THE CINCINNATI, 136 W. Lanvale Street, Baltimore, Md.

SOCIETY OF COLONIAL WARS, 122 E. 58th Street, New York City.

SOCIETY OF MAYFLOWER DESCENDANTS, 120 E. 71st Street, New York City.

SONS OF UNION VETERANS OF THE CIVIL WAR, Reading, Pa.

UNITED CONFEDERATE VETERANS, 8234 Sycamore St., New Orleans, La.

PART FOUR

ECONOMICS AND BUSINESS

DIVISION X

BUSINESS AND FINANCE

THE BANKING AND CURRENCY CRISIS OF 1933

By F. Cyril James

Professor, University of Pennsylvania

THE PRELUDE TO PANIC

Foreign Drain on American Gold.—By the summer of 1932 the condition of business activity was quiescent in most of the important countries of the world. The international financial crisis of 1931, which had swept from Austria across to Germany and then on to London, had caused a serious drain of gold from New York during the closing weeks of that year and the early part of 1932. This situation was met in the United States by the passage of the Reconstruction Finance Act and the Glass-Steagall Bill, and by June it appeared as though the crisis had entirely subsided all over the world. Business revival was already beginning.

Nature of the Crisis. — But, although the business revival that began in the autumn of 1932 had, in many countries, continued uninterruptedly throughout 1933, the United States experienced in the latter year one of the most serious financial crises of its chequered history. This crisis was entirely domestic in its nature: there were no international reprecussions such as those that rocked the world in 1931. We must, therefore, look to conditions within the United States for an explanation of this phenomenon.

R.F.C. and the Banks.—Although statistics of bank operations, and of bank failures, over the period from 1923 to 1932 had conclusively demonstrated the fundamental weakness of the American banking system, no steps had been taken in the direction of constructive reform during 1932. The provisions of the Glass-Steagall Act were temporary measures, pure palliatives, nor did the Reconstruction Finance Corporation do anything to aid reconstruction. Indeed it tended to weaken the commercial banks still further since, unlike the German Finance Institute and the Italian Institute of Industrial Reconstruction, the R.F.C. frequently took over as collateral the best assets of the banks that were compelled to seek its assistance. Moreover when, during the latter part of 1932, full statistics of R.F.C. loans to banks were published, there can be no doubt that the publicity reacted unfavorably upon public confidence in the banks appearing on the list.

CUMULATIVE DISTRUST OF BANKS

Political Factors. — These facts alone might have been sufficient to create the wave of distrust that spread over the country in the autumn, leading to runs upon banks in many districts and to widespread hoarding of currency and gold. But the situation was complicated by the fact that both political parties made extremely unwise use of economic ammunition during the election campaign. Criticism of the party in office took the form of highly-coloured analyses of the economic weakness of the existing situation, and this was countered by black pictures of the economic ruin that would descend upon the United States if the Democrats were elected. Beneath these two barrages public confidence was still further shattered.

Suspension of Bank Payments.—Had the commercial banks of the country been in sound and liquid condition, public distrust would not have been serious. Timorous depositors could have been paid promptly, and confidence would have been restored. But many banks were not sound, and very few indeed were liquid. As the demands of the depositors increased, banks borrowed as much as they could from the Reserve System, or from the Reconstruction Finance Corporation, but when their high-grade assets had been pledged there remained no alternative but suspension of payments. Each suspension of payments tended to weaken confidence in the banks that remained open, and to subject them to runs, so that the process gathered momentum like a huge snowball.

BANK HOLIDAYS

Nevada. — Oct. 31, 1932, may be said to mark the beginning of the end. On that day the Governor of Nevada proclaimed a twelve-day banking holiday in order to allow a breathing space during which the Wingfield chain of banks could be satisfactorily reorganised. Like many other commercial banks, the members of this chain had lent heavily against collateral (largely real estate) that had depreciated seriously in value. Their assets were frozen at a time when considerable amounts of deposits were being withdrawn. All lessons of banking history emphasized the necessity for a prompt and efficient solution of this problem, in order to allay public fears throughout the nation. Both the Federal Reserve System and the commercial banks of other districts were vitally interested. Nothing was done along these lines, however, and when the twelve days expired the moratorium had to be renewed.

Spread of Moratoria. — Naturally nervousness spread rapidly to the neighbouring states, and throughout the country, since many banks in various states were no more liquid than the Nevada institutions. In many cases action was taken by local authorities long before the administrative machinery of the State had time to function. Moratoria became a favourite, if ironical, device to prevent the closing of banks, and bank holidays of varying duration were proclaimed by the mayors of towns in such states as Illinois and Iowa. Such action did nothing to solve the problem. Indeed it aggravated the difficulty of the situation since deposit withdrawals increased owing to the desire of customers to escape the temporary loss of funds threatened by a moratorium. Even when these deposits were not withdrawn in cash for hoarding, they were transferred to stronger banks in the Eastern cities, and in either case the position of the bank losing the deposit was considerably weakened. In the face of the problems created by this piecemeal treatment of the situation, no coördinated national policy was developed to meet the emergency or to solve the underlying problem.

Iowa and Louisiana.—On January 20, 1933, conditions throughout Iowa had become so serious that the legislature passed an Act permitting the Superintendent of Banking to take over a bank and operate it for a year without formal receivership. This retarded somewhat the growth in bank failures since banks that would otherwise have closed their doors were continued in operation. It was not, however, a constructive step and, therefore, did nothing to restore public confidence. Two weeks later, on February 4th, the difficulties of certain banks in New Orleans caused the Governor of Louisiana to proclaim a one-day bank holiday. The panic was spreading rapidly.

Michigan.—The final phase may be said to open on Feb. 14, when the

Governor of Michigan proclaimed a bank holiday for seven days to enable some of the larger banks in Detroit to take steps to meet the situation. Once again real estate loans were among the major causes of the lack of liquidity of the banks affected, and it soon became apparent that conditions in Detroit were little, if any, better than those in Baltimore, Cleveland, and several other cities. One state after another hastened to take official action to met its own local problem.

Action in Other States.—On Feb. 21 New Jersey passed an act permitting the banks to impose restrictions on the repayment of funds deposited before the passage of the act, and on Feb. 27 similar action was taken by the majority of the banks in Ohio and Indiana. Maryland, meanwhile, had proclaimed a bank holiday on Feb. 25. On the morning of March 1st banks were closed in Alabama, California, Idaho, Kentucky, Louisiana, Mississippi and Tennessee, while they were operating, in many cases, on a restricted basis in other cities.

BANK WITHDRAWALS AND CURRENCY HOARDING

A complete breakdown of the banking mechanism throughout the country was imminent. Currency hoarding had grown to alarming proportions—much of it in the form of gold or gold certificates—and large quantities of capital were being exported from the United States to other countries. No banking system could stand the strain. During the week ending March 1, $750,000,000 were withdrawn in cash from the banks that remained open: on the two following days $818,000,000 more were withdrawn. The volume of money in circulation had risen to the record figure of $7,538,000,000. Even if they wished to do so, the Federal Reserve Banks could not continue to issue the additional currency demanded, unless reserve requirements were reduced, since the gold reserve was already close to the legal minimum.

THE CRISIS IN NEW YORK

On the whole, banks in the large Eastern cities, and particularly in New York, had weathered the storm fairly well. Indeed they had benefited at first from the large volume of deposits transferred to them from interior banks by depositors seeking safety. In February and March, however, conditions changed. The New York banks were called upon to render assistance to their country correspondents and, in common with the bankers of all Eastern cities, they suffered a severe drain when deposits were transferred back from them to banks in states that had enacted legislation safeguarding funds deposited subsequent to the date of the moratorium. The safeguarding of new deposits was one of the most dangerous features of the legislation in many states, yet even in retrospect it is hard to see how it could have been avoided as long as the Federal Government took no action. Finally, at 4:20 a.m. on March 4th, a two-day banking moratorium was proclaimed in New York by the Governor. Banks in Chicago and Philadelphia did not open that morning, so that by the time President Roosevelt made his inauguration address, the entire financial mechanism of the United States had broken down, as the following table clearly shows.

STATUS OF BANKING RESTRICTIONS BY STATES ON MARCH 4, 1933

ALABAMA—Closed until further notice.
ARIZONA—Closed until March 13.
ARKANSAS—Closed until March 7.
CALIFORNIA—Almost all closed until March 9.
COLORADO—Closed until March 8.
CONNECTICUT—Closed until March 7.
DELAWARE—Closed indefinitely.
DISTRICT OF COLUMBIA—Three banks limited to 5 per cent; nine savings banks invoke sixty days' notice.
FLORIDA — Withdrawals restricted to 5 per cent plus $10 until March 8.
GEORGIA—Mostly closed until March 7, closing optional.
IDAHO—Some closed until March 18, closing optional.
ILLINOIS—Closed until March 8, then to be opened on 5 per cent restriction basis for seven days.
INDIANA—About half restricted to 5 per cent indefinitely.

IOWA—Closed "temporarily."

KANSAS—Restricted to 5 per cent withdrawals indefinitely.

KENTUCKY—Mostly restricted to 5 per cent withdrawals until March 11.

LOUISIANA—Closing mandatory until March 7.

MAINE—Closed until March 7.

MARYLAND—Closed until March 6.

MASSACHUSETTS—Closed until March 7.

MICHIGAN—Mostly closed, others restricted to 5 per cent indefinitely; Upper Peninsula banks open.

MINNESOTA—Closed "temporarily."

MISSISSIPPI—Restricted to 5 per cent indefinitely.

MISSOURI—Closed until March 7.

MONTANA—Closed until further notice.

NEBRASKA—Closed until March 8.

NEVADA—Closed until March 8, also schools.

NEW HAMPSHIRE—Closed subject to further proclamation.

NEW JERSEY—Closed until March 7.

NEW MEXICO—Mostly closed until March 8.

NEW YORK—Closed until March 7.

NORTH CAROLINA—Some banks restricted to 5 per cent withdrawals.

NORTH DAKOTA—Closed temporarily.

OHIO—Mostly restricted to 5 per cent withdrawals indefinitely.

OKLAHOMA—All closed until March 8.

OREGON—All closed until March 7.

PENNSYLVANIA—Mostly closed until March 7, Pittsburgh banks open.

SOUTH CAROLINA—Some closed, some restricted, all on own initiative.

SOUTH DAKOTA—Closed indefinitely.

TENNESSEE—A few closed, others restricted, until March 9.

TEXAS — Mostly closed, others restricted to withdrawals of $15 daily until March 8.

UTAH—Mostly closed until March 8.

VERMONT—Closed until March 7.

VIRGINIA—All closed until March 8.

WASHINGTON — Some closed until March 7.

WEST VIRGINIA—Restricted to 5 per cent monthly withdrawals indefinitely.

WISCONSIN—Closed until March 17.

WYOMING—Withdrawals restricted to 5 per cent indefinitely.

EMERGENCY ACTS OF PRESIDENT ROOSEVELT

National Moratorium and Gold Embargo.—Steps to meet the crisis were promptly taken by the incoming Administration. Taking advantage of an Act of 1917 that had not been repealed, the President issued at 1 a.m. on March 6 a proclamation establishing a four-day banking moratorium and placing an embargo on gold. In order to ease the situation somewhat during this period various regulations were issued by the Secretary of the Treasury. Banks were allowed to carry on business considered essential to the movements of food and also to cash checks for medicine, other necessities of life, distress relief and various essential purposes—although it was expressly provided that neither gold nor gold certificates should be paid out. Despite these provisions there was a serious shortage of currency, and in several parts of the country scrip of various kinds was issued to meet the urgent demands of business.

Passage of Emergency Bank Act.—On Thursday, March 9 Congress assembled and passed the Emergency Bank Act in an incredibly short time. Although the session began at noon, the bill had passed both houses and been signed by the President at 8:36 p.m. This Act conferred upon the President express powers to regulate the financial system in time of emergency, provided for the appointment of conservators by the Comptroller of the Currency whenever in his opinion it was necessary to conserve the assets of a weak bank, and authorized the issuance of Federal Reserve bank notes against government bonds or commercial paper as collateral. It was distinctly an emergency measure designed to permit the resuscitation of the financial system, and not in any sense a permanently constructive measure.

Bank Licensing. — The President promptly extended his proclamation of March 6. By executive order, on March 10, the Secretary of the Treasury was empowered to issue licenses to banks that were found to be in sound condition, permitting them to resume normal operations. Banks located in each of the 12 Federal Reserve cities were permitted to open on the morning of Monday, March 13th; banks located in some 250 specified cities (in each of which a Clearing House existed) were opened on Tuesday; and banks in other parts of the country were opened on Wednesday. In view of the fact that no bank was licensed to open unless it was considered to be in sound condition, some banks were compelled to remain closed until adequate steps had been taken to strengthen them, but the following table indicates that a substantial majority of the banks throughout the country resumed operations promptly.

CONDITION OF BANKS, BY STATES, ON MARCH 18, 1933

State	Member Banks of Federal Reserve System		Non-member Banks	
	Total Number	Number Open	Total Number	Number Open
Alabama	73	73	149	124
Arizona	11	11	12	7
Arkansas	64	44	197	106
California	164	143	173	151
Colorado	102	77	100	100[1]
Connecticut	61	57	68	68
Delaware	20	6	49	46
District of Columbia	11	8	22	12
Florida	49	48	123	81
Georgia	80	76	209	155[2]
Idaho	37	27	59	43
Illinois	365	234	684[1]	166
Indiana	163	89	498	471
Iowa	190	92	600	140
Kansas	212	206	604	590
Kentucky	105	77	353	303
Louisiana	34	15	151	[6] [3]
Maine	44	23	35	21
Maryland	73	31	133	133
Massachusetts	160	138	63	57
Michigan	124	79	330	133
Minnesota	236	236[4]	545	296
Mississippi	24	19	214	156
Missouri	133	109	683	640
Montana	68	58	79	71
Nebraska	152	129	415[1]	415[4]
Nevada	7	7	6	6
New Hampshire	54	45	14	12
New Jersey	318[1]	245	149	132
New Mexico	26	21	22	20
New York	585	476	715[1]	577[1]
North Carolina	51	39	363	175
North Dakota	77	77[4]	149	149
Ohio	312	222	409	307
Oklahoma	231	205	254	253
Oregon	64	64	80	54
Pennsylvania	786	639	361	299
Rhode Island	14	13	17	17
South Carolina	28	19	103	97[4]
South Dakota	81	81[4]	154	101
Tennessee	[5]	79	305	245
Texas	529	516	535	433
Utah	32	28	42	39
Vermont	45	26	55	52
Virginia	149	124	222	219
Washington	109	82	138	75
West Virginia	84	64	115	115
Wisconsin	146	83	638	592
Wyoming	29	29	40	40

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[1] Approximately.
[2] Possibly incomplete.
[3] Eighty-three non-members and one member to open March 20.
[4] Some restricted.
[5] Figures not immediately available.
[6] Not reported.

RESUMPTION OF BANKING OPERATIONS

The banks resumed normal operations with surprising ease. Already, on March 15, it was apparent that the volume of new deposits vastly exceeded the amount of withdrawals. The combined statement of the Federal Reserve Banks for the week ended March 15 showed a reduction of $269,000,000 in money in circulation, an increase of $327,000,000 in gold holdings of the Reserve banks, and a decline of $182,000,000 in member bank borrowings. The reserve ratio rose from 45.6 per cent to 49.1 per cent in a week.

From this point on, the expansion of normal banking operations was a steady process. Currency returned from hoarding, and increasing numbers of banks were opened all over the country as appropriate steps were taken to raise new capital under the terms of the Act of March 9, and the amendment of March 24 permitting state banks to sell preferred stock to the R.F.C. under conditions similar to those prescribed for national banks by the original act. On June 16 the Banking Act of 1933, which is discussed elsewhere in this volume, was signed by the President for the express purpose of correcting some of the major defects of the banking system and, although several provisions of that act are open to criticism, and some important matters have been entirely omitted, the act may be taken as marking the end of the crisis in so far as it concerned the banking system.

STEPS IN ABANDONMENT OF THE GOLD STANDARD

The other half of the President's proclamation, the embargo on gold movements, was not terminated so rapidly. It was generally believed both here and in Europe that the suspension of the gold standard was temporary. Administrative spokesmen even pointed out that the gold standard had not been suspended at all, and as early as March 18 export of gold was permitted under license, the first shipment being made, on that date, to Italy. The embargo was not removed, however; indeed the hoarding of gold or gold certificates was made an offence subject to severe penalties, and all people were ordered to return gold and gold certificates to the Federal Reserve banks, in exchange for other forms of currency, prior to May 1.

While the dollar had shown very little weakness on the foreign exchange market throughout the crisis, it weakened perceptibly under the influence of the President's gold-hoarding order and of the inflationary proposals made in Congress. On April 19 the President definitely abandoned the gold standard and prohibited any further export or earmarking of gold coin or bullion, with the result that on the same day, the dollar fell to a discount of 11½ per cent in terms of gold currencies. In retrospect this action on the part of the Administration appears to have been entirely voluntary; it was not forced by events and there was a good deal of surprise occasioned by it in view of the very large American gold reserves. Early in May the Federal Government refused to pay gold on maturing certificates and coupons of United States bonds, and on May 26 a Joint Resolution was introduced into Congress which declared the gold clause in any contract to be unenforceable and contrary to public policy. This resolution passed both Houses and was signed by the President on June 5, thus completely abolishing the gold standard in the United States.

While it might be contended that all of the other legislation passed between March and June, and the policies adopted by the Administration thereunder, are closely related to the financial crisis, they cannot be discussed here. For practical purposes the passage of the Banking Act and of the Joint Resolution on gold may be taken as ending the financial crisis of 1933. What follows is a new chapter in financial history.

ECONOMIC AND BUSINESS CONDITIONS

By S. S. Huebner

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THE FOURTH YEAR OF DEPRESSION

Improvement in Some Directions.—Unlike 1930-32, which showed a progressive recession in industry, commerce, employment, and commodity and security prices, the year 1933 gave evidence that a turn for the better had occurred, although as a whole business improvement still can only be characterized as slightly better. Business conditions at the close of the year were highly mixed, certain indices showing decided improvement, others an apparently unchanged position as compared with the very unfavorable year of 1932, and still others a further substantial recession. Agriculture showed a large increase in prices, although the output in volume was the lowest in years. Most basic manufacturing and mining commodities were also quoted at the end of the year at prices materially higher than was the case at the close of 1932. Building award figures rose to the best level in a long time, owing, however, largely to Government awards and Government aid. Pig iron production showed a substantial increase for the year as contrasted with 1932, although the total is still far behind the record of previous years. Commodity index numbers, as well as employment and payroll indices, as explained later, also showed a decided improvement. The business failure record for 1933 indicated a remarkable improvement, being in fact the best record for any year within the past decade, and giving unmistakable evidence that the drastic process of debt liquidation in this memorable depression has about run its course.

Unfavorable Contrasts.—By way of contrast, certain other leading businesses gave a poor response to the general improvement in business. This is especially true of the railroads, where traffic and earning changes were negligible during the year, and remained at about the lowest point of the depression. It is also true of our foreign trade, exports for 1933 registering the poorest showing for any year of the depression, while imports exceeded those of 1932 but slightly. Along certain other important lines, 1933 proved by far the most dismal year of the whole depression period. This is particularly true of new capital financing, which a later account will show to have reached a point of absolute stagnation. It is also true of the dividend distribution of corporations, industrial dividend distributions during 1933 being 22 per cent under that of 1932, and for railroad and traction companies 62 per cent under the 1932 distribution. Bank clearings for the first eleven months of 1933 amounted to only 220,000,000,000 as compared with 23,000,000,000 for the corresponding period of 1932, or a decline of 6.5 per cent. At the close of the year (for the month of November) bank clearings had improved, however, to the extent of exceeding those at the close of 1932 by 9.6 per cent. As compared with 1932 the volume of share transactions on the New York Stock Exchange during 1933 was larger by 306,000,000 shares, or 87 per cent, and on the New York Curb Market by 44,000,000 shares, or 77 per cent.

The Stock Market.—Probably the foremost favorable tendency, unless it be that of improvement in business failures and the volume of stock market transactions, was the enhancement in stock market prices. The stock market serves as a discounter of future business conditions, and the rise in quotations during 1933 should certainly inspire hope for 1934. Railroad shares (Babson averages) appreciated from an average price of 17.71 for June, 1932 to an average of 56.53 for July, 1933, or an increase of nearly 220 per cent. During the same period industrial stocks showed an increase from 50.88 to 108.67, or more than a doubling. Copper stocks likewise appreciated from a June, 1932 average of 4.6 to 19.8 in September of 1933, or an increase of nearly 330 per cent. Most of the preceding increase occurred in 1933, particularly following March, and although a substantial and natural recession occurred following July, prices at the end of the year still showed a substantial advance for nearly all groups of stocks, with public utilities and bank stocks, however, remaining conspicuous laggards.

Banking.—Banking conditions during 1933 unfortunately remained very unsatisfactory, and bank shares as a group have remained at substantially the lowest level of the depression. However, bank failures have decreased greatly in all sections of the country as contrasted with the periods just before and after the March, 1933 bank moratorium. Despite this improvement in bank failures, however, operations of the banks have continued thus far highly unprofitable. Money rates have remained unduly low throughout the year, call rates in New York City rarely exceeding 1 per cent and remaining sometimes for an entire month at around ¾ of 1 per cent. Monthly averages for time loans also ranged throughout the year between 3 and 1¼ per cent, with the lowest monthly averages prevailing at the end of the year.

Agriculture.—Most of the indices of trade will be referred to under the headings of ''Leading Indices of Trade'' and ''Index Numbers.'' Brief reference, however, may be made to business conditions prevailing in certain of the leading groups of industries not usually represented in regularly prepared and commonly used index tables. Thus with respect to agriculture a decided improvement is noticeable as compared with 1932. According to *The Guaranty Survey* (December 26): ''The crop value at $4,076,537,000 showed an increase of 42 per cent above that in 1932. . . . The increase in the value of this year's harvest occurred despite a reduction of 18 per cent in the output of ten leading crops representing about 90 per cent of the acreage planted to all field and truck crops. The yield of these ten crops was the smallest in the last thirty years. The chief improvement was noted in corn, cotton, wheat and tobacco, whose combined value was 62 per cent above that of last year. The return to cotton planters was nearly double that of last year; and, despite the acreage reduction agreements, the cotton crop was slightly larger than that in 1932. The increase in the cotton value was, of course, due to better prices; for the foregoing figures do not take into consideration the bonus payments for acreage cuts.''

Manufacturing and Mining.—Similarly, in many manufacturing and mining industries over-supplies were considerably reduced, and advantage derived from a material increase in prices. Comparing December of 1933 with the same month of 1932, the following price increases may be selected from the many listed in the *Guaranty Survey:* Bituminous coal (Pittsburgh) from $1.10 per ton in 1932 to $1.80 in 1933; copper (New York) from 4.87½ cts. per pounds to 7.87½ cts.; hides (Chicago) from 5 cts. per pound to 10 cts.; pig iron (Pittsburgh) $14.00 a ton to $17.00; steel bilkets (Pittsburgh) unchanged at $26.00 a ton lead (New York) 3 cts. per lb. to 4.15 cts.; petroleum (Oklahoma-Kansas City) 94 cts. per bbl. to $1.02; rosin (Savannah) $2.57½ per 280 pounds to $3.67½; rubber (New York) 3 3/16 cts. per lb. to 8⅝ cts.; silk (New York) $1.60 per lb. decreased to $1.44½; sugar (New York) 2.85 cts. per lb. to 3.19; tin (New York) 22.80 cts. per lb. to 53.00 cts.; zinc (St. Louis) 3.12½ cts. per lb. to 4.50 cts.; and wool (Boston) 45 cts. per lb. to 87 cts.

Railroads.—Last year's issue explained the unfortunate position of the railroads, pointing out that this important industry, out of all of the

Nation's pivotal businesses, probably suffered the greatest reverses. Fortunately, however, there has been a moderate improvement in this field during 1933. According to the Bureau of Railway Economics: "Gross operating revenues for the first 11 months of 1933 (149 Class I Railroads) total $2,850,116,642, compared with $2,883,542,516 for the same period in 1932, a decrease of 1.2 per cent." But for the month of November (the latest monthly average), according to the same source, gross operating revenues amounted to $257,675,680 compared with $250,743,762 in November 1932, an increase of 2.8 per cent. For the first 11 months of 1933 these roads had a net railway operating income of $435,804,479, which was at the annual rate of return of 1.76 per cent on their property investment. For the corresponding period of 1932 the net operating income was $294,012,783, or 1.19 per cent on their property investment.

Construction.—In the field of building construction, conditions have shown a decided turn for the better as compared with the alarming conditions of 1932 and 1931. Last year the F. W. Dodge Corporation's reports for new building contracts awarded for December, 1932 totalled only $81,219,300. This extreme dullness continued during the first four months of 1933, the April total declining to $65,573,000. Since April, however, there has been a decided improvement, almost month by month, especially since July when the total awards stood at $82,693,000. For August the figure reached $106,131,000, for September $132,549,000, for October $145,364,000, and for November $162,330,600, the last total being almost twice that of July. Quoting the National City Bank "building figures are the best in a long time. The Public Works program is gathering speed, and contracts awarded in this classification during the first half of October exceeded the same period of last year by 57.5 per cent. From month to month building is showing a contra-seasonal increase."

RESUME OF LEADING INDICES OF TRADE

Industrial Production.—In nearly all other outstanding lines of business, a moderate improvement in operations is apparent, and in some to a very substantial degree. Using the latest available industrial production figures (Index Numbers of Federal Reserve Board, adjusted for seasonal variations, and with the 1923-25 average—100) the showing is as follows for July and October of 1933, as compared with December 1932: iron and steel 101 and 77 as compared with 64; cotton consumption 130 and 91 as compared with 88; wool consumption 141 and 97 compared with 76; slaughter and meat packing 106 and 90 compared with 79; wheat flour 95 and 76 compared with 92; sugar meltings 83 and 76 compared with 89; wood pulp and paper 106 and 99 compared with 80; news-print consumption 101 and 105 compared with 94; lumber 46 and 33 compared with 23; automobiles 70 and 46 compared with 60; leather and products 116 and 93 compared with 85; cement 56 and 35 compared with 43; nonferrous metals 109 and 95 compared with 50; petroleum refining 155 and 152 compared with 132; gasoline 198 and 195 compared with 132; rubber tires and tubes 143 and 103 (September) compared with 67; tobacco products 117 and 108 compared with 112; bituminous coal 76 and 61 compared with 66; a total of all minerals 90 and 81 compared with 76. In nearly all of the foregoing the business spurt, culminating in July, carried operations considerably ahead of the 1932 level. The subsequent retrocession in business was considerable. Yet the latest available figures (for October 1933) were, in the majority of the aforementioned instances, moderately in advance of those prevailing at the close of 1932.

New capital financing for 1933 totals only $145,183,000 as compared with $325,361,000 for 1932, $1,763,448,000 in 1931, and $4,944,403,000 for 1930. The 1933 record is less than half that of the preceding year, also a very poor year. Reporting on the first 11 months of the year, the *Commercial and Financial Chronicle* points out that the compilation was the smallest for any similar period since that journal began its compilations in 1919. Such a record of stagnation, it should be pointed out, is in large part attributable to extreme caution in extending bank credit for capital outlays.

CORPORATE FINANCING

(Source of Data—*Survey of Current Business*)

	1932		1933	
	Capital	Refunding	Capital	Refunding
January	$46,664,000	$ 1,500,000	$22,157,000	$42,360,000
February	38,863,000	5,688,000	1,314,000	36,241,000
March	48,247,000	9,097,000	3,170,000	2,248,000
April	15,070,000	33,124,000	17,335,000	18,207,000
May	7,231,000	15,000,000	3,584,000	12,050,000
June	4,110,000	25,231,000	12,082,000	48,296,000
July	62,842,000	49,029,000	52,760,000	43,061 000
August	26,281,000	107,114,000	14,050,000	....
September	6,550,000	4,332,000	8,911,000	17,854,000
October	44,459,000	19,015,000	....	....
November	10,633,000	30,958,000	....	....
December	10,399,000	18,446,000	....	....

Exports and Imports.—Exports of merchandise during the first 9 months of the present year were only $1,105,076,000 as compared with $1,188,895,000 for 1932 and $1,842,511,000 during the same period of 1931 (a decrease of 7.1 per cent and 40 per cent respectively), and with $2,952,451,000 for the same period of 1930, and $3,843,676,000 for the same months of 1929. In the case of imports of merchandise, on the contrary, there was a slight increase, the first 9 months' total being $1,036,765,000 as compared with $1,015,301,000 for the corresponding period of 1932, and with $1,618,674,000 for 1931, $2,401,312,000 for 1930, and $3,360,017,000 for 1929.

Iron and Steel.—Pig iron production for 1933 (first 9 months) totals 9,578,000 tons, compared with only 5,169,000 tons for the corresponding period of 1932, and with 15,019,000, 25,702,000, and 32,678,000 tons for the corresponding periods of 1931, 1930 and 1929. Unfilled tonnage of the United States Steel Corporation, however, shows about the same record as was the case last year, the unfilled tonnage of 1,797,913 for October (the latest available) comparing with 1,997,040 for the corresponding month of 1932.

YEARLY TOTALS

	Capital	Refunding
1933	$ 135,363,000*	$ 220,317,000*
1932	321,349,000	318,534,000
1931	1,763,448,723	825,516,700
1930	4,944,403,166	528,875,877
1929	8,639,439,560	1,386,921,569
1928	6,079,602,416	1,738,274,615
1927	5,391,008,544	1,928,187,260
1926	4,357,002,720	942,550,970
1925	4,100,725,167	637,384,524
1924	3,322,295,764	516,275,300
1923	2,712,996,155	530,345,942

* For nine months.

Railroads. — As explained by the Bureau of Business Conditions of the Alexander Hamilton Institute (December): "Railroad traffic in 1933 responded only slightly to the sharp pick-up in industrial activity. . . . Freight cars loaded during the first 10 months of 1933 showed an increase of only 2.2 per cent over the same period of 1932. Total operating revenue in this period was the smallest for the depression, amounting to $2,592,000,000 in 1933 as against $2,633,000,000 in 1932 and $5,326,000,000 in 1929. There was, however, an improvement in net income due to a greater drop in expenditures than in revenues. Net income amounted to $398,000,000 in 1933 as against $261,000,000 in 1932.

It was still small, however, as compared with the 1929 figure of $1,096,000,000.''

BUSINESS FAILURES

Reference should also be made to the 1933 record of business failures. The year 1932 showed a substantial increase of bankruptcies over 1931, namely 30,301 (Bradstreet and Dun average), as contrasted with 27,335. For the two years the percentage of failures to the total firms in business stood respectively at .120 and .106. For 1933 the showing was decidedly better, practically every month showing a percentage improvement over the preceding month, namely .141 in January to .093 in April to .080 in June to .072 in August and to .059 in October. According to recent press accounts: ''A sharp decline in business failures in the United States in 1933 is reported by Dun and Bradstreet. For the entire year, defaults numbered 20,307 compared with 31,822 in 1932, and 28,285 in 1931. The total was the smallest for any year since 1923 when insolvencies numbered 18,718.

DIVIDENDS

Last year's issue of THE AMERICAN YEAR BOOK explained how industrial and railroad dividends were fairly well maintained during 1930 and 1931, but that during 1932, owing to the continued and increasingly drastic nature of the depression, this barometer also began to show up badly. Everywhere managements became fearful of their surplus accounts, and therefore cut dividends in order to maintain depleted resources. Thus during the first 10 months of 1932 (Babson's) industrial dividend payments aggregated only $1,624,000,000 as against $2,336,900,000 for the same period in 1931 (a decline of over 30 per cent), and as compared with $2,655,600,000 for the corresponding period of 1930. For the first 10 months of 1933 such industrial dividend distribution totals only $1,263,000,000, or a decline, compared with the corresponding period of 1932, of 22 per cent. Railroad and traction dividends for the first 10 months of 1933 stood at only $94,200,000 as against $245,100,000 during the same period of 1932 (a decline of nearly 62 per cent), and with $475,000,000 and $530,400,000 during the same months of 1931 and 1930. This depression has certainly proved severe upon stockholders and drives home the lesson of large surplus maintenance. It is certainly reasonable to believe that ''one of the lessons derived by business managers from this severe business depression is the wisdom of increasing surplus (insurance) reserves even more in the next period of prosperity.''

COMMODITY INDEX NUMBERS

(Source of U. S. Dept. of Labor—*Survey of Current Business*)
(Source of U. K. Board of Trade—*Board of Trade Journal*)

	U. S. Dept. of Labor		Bradstreet		U. K. Board of Trade	
	1932	1933	1932	1933	1932	1933
January	67.3	61.0	7.52	6.53	63.8	60.3
February	66.3	59.8	7.32	6.35	63.4	59.5
March	66.0	60.2	7.15	6.54	63.0	58.7
April	65.5	60.4	6.92	6.98	61.6	58.5
May	64.4	62.7	6.68	8.02	60.6	59.7
June	63.9	65.0	6.73	8.34	59.0	61.2
July	64.5	68.9	6.80	9.01	58.8	61.5
August	65.2	69.5	7.17	8.99	59.9	61.7
September	65.3	70.8	7.28	9.05	61.4	62.0
October	64.4	71.2	6.97	8.85	60.8	61.8
November	63.9	....	6.89	8.81	60.8	61.9
December	62.6	....	6.79	....	60.8	....

COMMODITY INDEX NUMBERS

Last year's discussion emphasized the declining tendency in commodity prices during 1932. The year 1933, however, shows a tendency in the opposite direction. For 1932 the

Bradstreet index of wholesale prices averaged 7.10, with the highest monthly average prevailing in January, namely 7.52, and almost the lowest in December, namely 6.79. Even lower averages prevailed during the first 3 months of 1933, namely 6.53, 6.35, and 6.54. Thereafter, however, there was a continual monthly rise until September, when the monthly average stood at 9.05. Thereafter a slight recession occurred, the November average (the latest available) standing at 8.81. A similar tendency is also to be noted with respect to the United States Department of Labor index number. Beginning with February 1933, this index shows a constant increase from 59.8 to 71.2 for October. For 1932 this index number averaged 64.9 for the year.

YEARLY AVERAGES
(Bradstreet)

1902	7.88
1903	7.94
1904	7.92
1905	8.09
1906	8.41
1907	8.90
1908	8.00
1909	8.51
1910	8.98
1911	8.7129
1912	9.1867
1913	9.2115
1914	8.9985
1915	9.8531
1916	11.8236
1917	15.6385
1918	18.7117
1919	18.6642
1920	18.8096
1921	11.3695
1922	12.1186
1923	13.4028
1924	12.8672
1925	13.9445
1926	13.0207
1927	12.7788
1928	13.2824
1929	12.6685
1930	10.7450
1931	8.7596
1932	7.0956
1933	7.9518*

* For 11 months.

LABOR CONDITIONS

As regards labor conditions, 1933 also shows a decided improvement compared with the dismal conditions of 1932. Referring to the *Industrial Bulletin* of the New York State Department of Labor, on employment in New York State factories, employment increased from 55.3 in January 1933 to 69.6 in October (latest figure available). For 1932 the yearly average was 59, with the average for December standing at 57. With respect to payroll conditions this index also shows a constant improvement following March, 1933, namely from 38.4 in March to 54.1 in October (the latest figure obtainable). For 1932, the yearly average was 47, with the average for December reported at 43. A compilation furnished by the Alexander Hamilton Institute (January 6, 1934) for 74 leading types of industries shows a decided improvement in factory payrolls for November, 1933, as compared with November, 1932. The percentage change in the index (1926—100 and unadjusted for seasonable variations) is favorable for 1933 in all except four of these 74 instances, and even here the unfavorable tendency is very slight. Just a limited number of these industries can be mentioned. For agricultural implements the comparison for November, 1932 with November, 1933 is as 15.7 is to 35.2, or an increase of 124.2 per cent; automobiles 26.9 and 36.3, increase 34.9 per cent; beverages 51.4 and 116.6, increase 126.8 per cent; boots and shoes 39.4 and 46.5, increase 19.2 per cent; carpets and rugs 33.6 and 54.3, increase 63.6 per cent; chemicals 61.6 and 86.3, increase 40.1 per cent; cotton goods 51.6 and 81.4, increase 57.8 per cent; cutlery 42.3 and 54.3, increase 28.4 per cent; electrical appliances 32.5 and 46.6, increase 43.4 per cent; furniture 25.6 and 34.2, increase 33.62 per cent; glass 40.2 and 59.2, increase 47.3 per cent; hardware 24.5 and 30.5, increase 24.5 per cent; iron and steel 23.0 and 43.6, increase 89.6 per cent; leather 54.1 and 69.8, increase 29 per cent; lumber, sawmills, 18.1 and 29, increase 60.2 per cent; meat packing 66.9 and 85.7, increase 28.1 per cent; paints and varnishes 51.7 and 58.9, increase 13.9 per cent; paper and pulp 50.3 and 62, increase 23.3 per cent; refining, copper, lead, zinc, etc. 37.5 and 55.2, increase 47.2 per cent; structural iron work 23.5

and 32.6, increase 38.7 per cent; woollen and worsteds 49.1 and 66., increase 34.4 per cent. The general index for all of the 74 types of industries indicates an improvement from 38.6 to 50.3, or a gain of 30.3.

NATIONAL INDUSTRIAL RECOVERY ACT AND PROGRAM

By Willard E. Atkins

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INCEPTION AND PURPOSES OF THE ACT

The events leading up to the bank holiday of March, 1933 ushered in immediately a series of acts with respect to banking. But these same events provided the stimulus behind the National Industrial Recovery Act drawn up and signed by the President on June 16, 1933. President Roosevelt, at the time, stated: "History probably will record the National Industrial Recovery Act as the most important and far-reaching legislation ever enacted by the American Congress." A second statement by the President described the task of the Administration as two-fold:

First, to get many hundreds of thousands of unemployed back on the payroll by snowfall, and second, to plan for a better future for the longer pull. While we shall not neglect the second, the first stage is an emergency job. It has the right of way.

The second part of the act gives employment by a vast program of public works. . . . Our first purpose is to create employment as fast as we can but we should not pour our money into unproved projects.

The first part of the act proposes to our industry a great spontaneous coöperation to put millions of men back in their regular jobs this summer. The idea is simply for employers to hire more men to do the existing work by reducing the work-hours of each man's week and at the same time paying a living wage for the shorter week.

STATEMENT OF POLICY

The declaration of policy in the Industrial Recovery Act stated the existence of a national emergency "productive of widespread unemployment and disorganization of industry. . . . And to provide for the general welfare by promoting the organization of industry for the purpose of coöperative action among trade groups, to induce and maintain united action of labor and management under adequate governmental sanctions and supervision, to eliminate unfair competitive practices, to promote the fullest possible utilization of the present productive capacity of industries, to avoid undue restriction of production (except as may be temporarily required), to increase the consumption of industrial and agricultural products by increasing purchasing power, to reduce and relieve unemployment, to improve standards of labor, and otherwise to rehabilitate industry and to conserve natural resources."

NRA ORGANIZATION AND PROVISIONS

Administration.—The National Industrial Recovery Act (NIRA) created the National Recovery Administration (NRA). Section 2a of the Act set up the administrative agencies: (a) The President may establish such agencies as are necessary to effectuate this act; (b) The President may delegate any of his powers under this act to such officers as he may appoint; (c) This act shall be in effect for two years, or shall expire earlier by Presidential proclamation or Congressional resolution that the emergency has ended.

Code and License Provisions. — The National Industrial Recovery Act provided for the formulation of codes of fair competition which trade associations may submit for approval to the President. The associations were required to be representative of the industry and the codes were not to permit monopolistic practices. In addition the President had power to modify the codes in behalf of public interest and in behalf of the purposes of the Act, also to initiate new codes in cases where industries did not themselves make use of their rights under the Act. It was decreed that the district courts should have jurisdiction to prevent violation of the codes, that the President may impose fees and limitations on imports if imported goods threatened the operation of the codes and that he might even forbid entry of goods unless the importer should have secured a license under the terms indicated by the President. The violation of the codes in interstate or foreign commerce was declared to be a misdemeanor subject to a maximum fine of $500 for each day of the offence. The other provision of the Act with respect to agreements and licenses follows: Sec. 4 (a) The President is authorized to enter into agreement and approve agreement between groups in an industry to effectuate the purpose of this act; (b) Whenever the President finds that in order to carry out this act licensing of business activity is necessary and puts such licensing into practice, no person shall engage in interstate or foreign commerce without such a license, subject to fine of not over $500, or imprisonment of not over six months, or both for each (day of) offence. This provision shall last one year or less if President or Congress decides the emergency is over; Sec. 5 While this act is in effect, codes and licenses shall be exempt from the anti-trust laws; nothing in this act shall prevent manual laborer or farmer from pursuing their vocations.

Constitutionality. — Some doubt exists as to the constitutionality of the licensing provisions in so far as it restricts the individual's right to pursue whatever business he chooses. In the Oklahoma Ice Case last year the U. S. Supreme Court held that a licensing system was a violation of ''due process.'' The Kent stores, operators of dry cleaning and dyeing establishments, filed in the U. S. District Court of Brooklyn on Dec. 11 a protest against the National Industrial Recovery Act, alleging it violates the Fifth Amendment. The fate of the National Industrial Recovery Act, therefore, may soon be tested. Previous positions taken by Justices Brandeis, Stone, Cardozo and Roberts indicate that they can be counted upon to support the act, but the remainder of the Court is doubtful.

Miscellaneous Provisions. — Limitations upon the application of the Act appear in Section 6: (a) No trade or group shall have the benefits of this act until it files with the President such information as he shall prescribe; (b) The President is authorized to prescribe regulations necessary so that organizations benefiting from this act shall be representative; (c) On request of the President, the Federal Trade Commission shall make such investigations as are necessary to carry out the purposes of this Act, within the powers vested in it under the amended Federal Trade Commission Act.

THE COLLECTIVE BARGAINING CONTROVERSY

Statement of the Act.—Section 7a has been a center of disagreement. This section reads as follows: ''Every code of fair competition, agreement, and license approved, prescribed, or issued under this title shall contain the following conditions: (1) that employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; (2) that no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing; and (3) that employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.''

Interpretation.—The question here has been: What does the statement with respect to the right of labor to organize and bargain collectively mean? Administrator Johnson announced that it meant exactly what it said. But this is not particularly enlightening. Organized labor wants to believe that it assures collective bargaining through union representatives and the steel and certain other industries want to believe that it means that management may deal with its men very much as it has in the past. The automobile industry sought to and succeded in including the so-called ''merit clause'' in its code: ''Without in any way attempting to qualify or modify, by interpretation, the foregoing requirements of the National Industrial Recovery Act, employers in this Industry may exercise their right to select, retain, or advance employees on the basis of individual merit, without regard to their membership or nonmembership in any organization.'' The danger of the merit clause was recognized in the action of President Roosevelt on Oct. 5 in eliminating the clause from the boot and shoe, farm equipment, and boiler manufacturing codes.

APPLICATION OF THE AGRICULTURAL ADJUSTMENT ACT

Section 8 (b) provides that the President may delegate any of the functions conferred upon him in this title with respect to industries handling agricultural products to the Secretary of Agriculture.

OIL REGULATION

Section 9 (a) authorizes the President to initiate before the Interstate Commerce Commission proceedings ~~to~~ control operations and fix reasonable prices for oil, and that the Interstate Commerce Commission shall give preference to such proceedings. Also Section 9 (b) states that the President may institute proceedings against holding-companies in pipe lines which tend to create a monopoly. In Section 9 (c) the President may prohibit interstate or foreign commerce of petroleum or petroleum products produced or withdrawn from storage in excess of amounts prescribed by state laws. Violation punishable by $1,000 fine, six months imprisonment, or both.

PUBLIC WORKS

Title II of the act concerns itself with public works and construction projects, including (a) roads and public buildings, (b) conservation and development of natural resources, (c) any projects similar to those carried on by public authority in the past, (d) housing and slum clearance projects, (e) hospitals, reservoirs, pumping plants, drydocks and naval and army construction within treaty limits. The amount for state highways must be at least $400,000,000; for national roads and highways, at least $50,000,000; $25,000,000 may be used to aid in subsistence homestead purchasing. These projects must be carried out under minimum wages insuring a decency and comfort standard of living, a maximum of thirty hours per week for each worker (except for administrators, etc. and as far as feasible) and as much human labor in lieu of machinery as is ''consistent with sound economy and public advantage.''

FINANCIAL PROVISIONS

The expenditures involved under the Act as a whole are to be made entirely out of appropriations provided for in the Act itself. These comprise the later portion of the second title under the Act. The first source of appropriation is to consist in the issue of securities and sinking fund by the Secretary of the Treasury. The second source was originally a number of special taxes which, however, have automatically been abolished with the repeal of the 18th Amendment. These include: a ½c. rise in the gasoline tax, a 5 per cent tax on corporation dividends, a

1/10 per cent tax on corporation stock and a 5 per cent tax on profits above 12 per cent of capitalization of corporations; the increase of ¼ per cent on corporation consolidated returns as provided in section 218 still holds. The total appropriations for the Act, as well as $100,000,000 to be spent for the Agricultural Adjustment Act, is $3,300,000,000.

THE NATURE OF THE ADMINISTRATIVE MACHINERY

The machinery for the Act was set up by the President on the day he signed the Act. When a trade association has a code ready to submit and the association has qualified as truly representative, and after reasonable notice has been issued to all concerned, a public hearing will be held by the Administrator or a deputy. A Labor Advisory Board appointed by the Secretary of Labor will be responsible that the affected labor group, whether organized or unorganized, is fully and adequately represented in an advisory capacity and an interested labor group will be entitled to be heard through representatives of its own choosing. An Industrial Advisory Board appointed by the Secretary of Commerce will be responsible that every affected industrial group is fully and adequately represented in an advisory capacity and an interested industrial group will be entitled to be heard through representatives of its own choosing. A Consumers' Advisory Board will be responsible that the interests of the consuming public will be represented and every reasonable opportunity will be given to any group or class who may be affected directly or indirectly to present their views. At the conclusion of these hearings and after the most careful scrutiny by a competent economic staff the Administrator will present the subject to me for my action under the law. The hearings will be presided over by deputy administrators appointed by General Johnson.

NRA AIMS

The manner in which the Act and its instrumentalities are expected to realize its purpose was expressed by President Roosevelt as follows: "The aim of this whole effort is to restore our rich domestic market by raising its consuming capacity. If we now inflate prices as fast and as far as we increase wages, the whole project will be set at naught. We cannot hope for the full effect of this plan unless, in these first critical months and, even at the expense of full initial profits, we defer price increases as long as possible. If we can thus start a strong sound upward spiral of business activity our industries will have little doubt of black-ink operations in the last quarter of this year. The pent-up demand of this people is very great and if we can release it on so broad a front, we need not fear a lagging recovery. There is greater danger of too much feverish speed."

THE BLANKET CODE

On July 20 the President issued a Re-employment Agreement effective from Aug. 31 to Dec. 31, 1933, and invited all industrial groups and enterprises which were not yet working under an industrial code to sign it. This provided in the first place for the elimination of child labor under sixteen except that children from fourteen to sixteen may be employed in non-manufacturing enterprises for three hours a day; secondly (1) white collar employees are to have a forty-hour maximum week; (2) stores are to be open on a fifty-two hour minimum; (3) factory workers are to have a thirty-five hour maximum week and an eight-hour-day, but a forty-hour average may be worked over any six-week period; (4) the above maximum hours are not applicable to establishments of only two employees or in towns of less than 2,500 population. Other exceptions may be based on the nature of the occupation; (5) a $15 minimum wage for white collar workers in large cities and a $14.50, $14, or $12 wage in smaller cities and towns; (6) a 40c minimum for labor unless the 1929 wages were less, but in no case less than 30c per hour. This minimum is to be carried in piece work; (7) compensation now above the minimum is to be retained after reduction in hours and all pay is to be increased in equal ratio with the minimum. The remaining provisions provided for "fair" prices and for the possibility of exceptional provisions in particular industries.

The machinery for administering the President's Re-employment Agreement, part of which will be used in the administering of the regular codes, was set up by General Johnson. It recognized the objectives of employers and consumers; and indicated the lines of coöperation with the Administration, district boards of seven members to deal with local problems referred to it by the National Recovery Administration, state boards to deal similarly with state problems and finally state councils composed of all state associations who wish to coöperate with the Administration.

WORK OF ADMINISTRATIVE MACHINERY

A large portion of the nation's industries are already operating under codes of fair competition. The first thirty industries to sign codes were the following: cotton, textiles, shipbuilding, wool, electrical fixtures, coats and suits, laces, corsets and brassieres, legitimate theaters, petroleum, lumber, steel, photo manufacturing, fishing tackle, rayon and synthetic yarn, hosiery, men's clothing, automobile, motion picture laboratories, wall paper, textile bags, artificial flowers and feathers, linoleum, gasoline pumps, oil burners, leather, C. I. soil pipe, salt, soft coal, transit industry, underwear manufacturing. These codes were completed by September 20. Since then the most important codes signed include: silk, banks, shoes, retail motor vehicles, farm equipment, builders' supplies, dress manufacturing, stock exchange, automotive equipment, machine tools, cleaners and dyers, air transport, motion pictures, investment bankers, brewers.

By early December only about $300,000,000 of the public works fund are still to be allocated. Of the $3,000,000,000 already distributed, the Navy has received $247,000,000; the Post Office and Treasury Departments, $100,000,000; Civil Works Administration, $400,000,000; slum clearance projects, $100,000,000, and state road projects about $400,000,000.

IMMEDIATE CONSEQUENCES OF THE ACT

Employment Gain. — Secretary Ickes has estimated that 3,000,000 men obtained employment by Nov. 25 as a result of the public works program. A survey taken at about the same time by the American Federation of Labor attributed 4,000,000 new jobs to the codes and Presidential agreements. The A. F. of L. on Nov. 30 announced: "Payroll totals were still moving upward in October, and as living costs rose only 0.1 per cent workers' total 'real' buying power increased from 20.5 per cent (September) to 23.1 per cent (October) above the March level."

Strikes.—Another possible consequence of the Recovery Act has been an extensive strike wave. The National Association of Manufacturers' on Nov. 17 estimated that wage losses of about $24,000,000 had resulted from 1,100 strikes throughout the country in the four months preceding and that the working time lost was 7,000,000 days.

Production.—On the other hand, statistics of the *Federal Reserve Bulletin* show a fall in production of approximately 23 per cent from July through October. The index in October, which was 77 per cent of the 1923-1925 average, is, however, 10 per cent above that of last October and 17 per cent above March of this year.

CONCLUSIONS

The relationship between these changes in economic conditions and the Recovery Act has been subject to a variety of interpretations. Some observers attribute the gain to the beneficent influences of the Administration's Recovery Program; others claim that the improvement is but the inevitable recovery from depression, a comeback which, if any thing, has been delayed by the NRA. The latter commentators point to the recovery in England as evidence of a recovering world.

THE SECURITY AND MONEY MARKETS

By S. S. Huebner

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GENERAL CONDITIONS

Turning Point in the Depression.—Last year's account of the security and money markets for 1932 was distressing indeed to the holders of stocks and bonds. The extraordinary depreciation of values was carried in July to the ninth new low of this depression, and the depreciation was particularly heavy in preferred stocks and high-priced common shares. The principal factor, was still an extraordinary amount of forced liquidation by financial institutions as well as by individuals hard pressed to protect illiquid assets such as real estate and mortgages. There are many indications that the low of July, 1932, marked the bottom as well as the turning point in this memorable depression as far as the stock and bond markets are concerned. The market gradually settled down to a reasonably firm basis, became essentially dull as to volume of transactions on the exchanges and gave an excellent exhibition of maintaining its price level despite the worst possible budget of news. The stock market of the last few months of 1932 seemed to be capable of meeting the large mass of unfavorable news, such as an enormous number of dividend cuts and omissions by large corporations, poor financial quarterly reports, a heavily unbalanced Federal budget, an unfavorable foreign situation, including frequent default of obligations to our Government as well as to our citizens, and a multitude of other factors little designed to inspire confidence. The conclusion was ventured that the market "had clearly reached the stage of accumulation by those who are discerning and capable of protecting their commitments and that funds were piling up so plentifully and credit had become so cheap a turn for the better was near at hand."

The Bull Market of 1933.—The security market for 1933 has indicated the correctness of this view. Although showing little recuperative power during the later months of 1932 and the first four months of 1933, it subsequently staged a violent recovery which reached its peak in July, 1933. The rise for railroad stocks (*Babson's Reports*) extended from an average of 29.19 for March to 56.53 for July, and for industrial stocks during the same months from 62.95 to 108.67. It may safely be said that the year extending from June, 1932, to July, 1933 represents, in percentages, one of the most stupendous bull markets on record. Railroad stocks (using the Babson list of 20 representative roads) appreciated from an average price of 17.71 for June, 1932, to an average of 56.53 for July, 1933. During the same period, the monthly averages for 30 industrial stocks (Babson's list) increased from 50.88 to 108.67. In even so many instances the shares of the most outstanding corporations of the nation increased in dollar valuation in a single year from 200 to 300 per cent. For copper shares the average appreciation exceeded 300 per cent. And this huge rise, it should be noted, occurred during the blackest year of the depression, with its moratoriums, its holocaust of bankruptcies, and its unparallelled daily budget of bad news. The stock market has been true to form, *i.e.* ahead of the times as a discounter.

Group Movements.—The pace was so extraordinary as to make a reaction most natural. This did occur the following July. Yet the present level of prices, after six months of decline, still shows, as will be explained later, a very substantial gain over the averages of March, 1933, and an extraordinary gain over the low average level of June, 1932. It is also noteworthy that the following July a decided realignment of prices occurred with respect to different groups of stocks, probably accounted for, in the main, by the ever-present threat of monetary inflation. Many groups of shares became known as the ''inflation stocks.'' In fact there are few instances on record where a greater realignment in prices has occurred within a six-months period. Thus leading oil, automobile, metal and manufacturing shares are still today near the record top of last July, and in many instances are breaking through to new highs day after day. The corporations represented by these shares stand to gain through a devaluation of the dollar. Railroad shares, on the other hand, have regained only about half of the reactionary decline since last July. Still other groups of shares, like those representing public utilities and banks, are selling at bottom prices for the year, and in many instances individual issues within these groups have lately reached record lows for this depression.

Market Value of Listed Stocks.—As explained last year, the *New York Stock Exchange Bulletin* (December, 1933) placed the total market value of all listed stocks on the New York Stock Exchange at $22,767,000,000 in January, 1933. Subsequently this market value was greatly increased during the bull market of the first half of the year, culminating in July, 1933, when the total market value stood at $36,348,000,000. This represents an increase of nearly 60 per cent for all of the 1,285,000,000 shares listed on the New York Stock Exchange last July. The decline, following July, carried the total market value down to $32,542,000,000 for December of this year. This decline, however, represents a depreciation of only slightly over 10 per cent. The December figure, it should be noted, compares with $22,259,000,000 for December, 1932, $26,693,000,000 for January, 1932, $49,019,000,000 for January, 1931, $64,708,000,000 for January, 1930 and $67,478,000,000 for January, 1929.

Average Monthly Index Changes.—To show the enormous extent of the downward movement from January to July, 1932, it should be pointed out that the average monthly stock index price, as published by the *New York Stock Exchange Bulletin,* declined from 29.37 for January, 1932 to a low of 18.89 for July, 1932. Again, to show the magnitude of the recovery during the following year (July, 1932 to July, 1933) the index number increased from 18.89 for July, 1932 to 37.36 for July, 1933, or an increase of about 100 per cent. For the last five months of 1933, this index stood as follows: 35.47 for August, 37.41 for September, 34.32 for October, 32.21 for November and 32.78 for December.

Bond Values and Prices.—All American bonds listed on the New York Stock Exchange showed a market value of $26,836,000,000 for Jan. 1, 1933; declined to $25,667,000,000 for April 1, 1933, and rose to $29,342,000,000 for Sept. 1. For Dec. 1, the total market value of all American bonds stood at $28,065,000,000. This figure, it should be stated, compares with $26,790,000,000 for Jan. 1, 1932, $29,579,000,000 for Jan. 1, 1931, $29,204,000,000 for Jan. 1, 1930, $29,178,000,000 for Jan. 1, 1929, and $31,616,000,000 for Jan. 1, 1928. At the beginning of 1933 the average price for 1,186 issues was 81.65; thereafter the average rose to 88.03 on Aug. 1; while on Dec. 1 the published average stood at 82.98. The last figure compares with a published average of 88.19 for Jan. 1, 1932; 95.90 for Jan. 1, 1931; 97.03 for Jan. 1, 1930; 97.98 for Jan. 1, 1929, and 101.27 for Jan. 1, 1928.

VOLUME OF STOCK TRANSACTIONS

The year 1932 was described in last year's issue of THE AMERICAN

YEAR BOOK as one of extreme dullness, inactivity in shares becoming increasingly greater during the last quarter of the year. By way of comparison, the market activity of 1933 was quite pronounced, particularly during the bull market of the first half of the year. As prices reached the high levels of June and July, we again began to witness four and five million share days. Shares sold on the New York Stock Exchange totalled 655,835,821 for 1933 (as reported by the *Public Ledger*), as compared with 424,800,642 for 1932, 576,738,298 for 1931, 810,038,161 for 1930, 1,124,991,490 for 1929, 919,621,825 for 1928, 576,563,218 for 1927, 450,845,255 for 1926, and 317,000,000 for 1919 (the highest record of the preceding industrial cycle). But as previously explained, the huge rise in the number of shares dealt in in 1929 and 1930 is partly attributable to the substantial increase in the number of additional shares listed on the New York Stock Exchange, such increase being indicated by the fact that whereas the number of listed shares totalled 655,000,000 in 1928, the total increased in 1929, 1930 and 1931, respectively to 757,000,000, 1,128,000,000, and 1,296,000,000. The substantial increase in volume of transactions during 1933, however, as compared with 1932, is not influenced by this factor. At the beginning of 1932 the total shares listed on the New York Stock Exchange amounted to 1,318,000,000, whereas for December, 1933, this total stood at only 1,295,000,000. On the New York Curb Market 1933 shares sol also showed almost a doubling, th total standing at 100,736,000 share (*Public Ledger*) as compared wit only 56,997,581 shares for 1932. Th 1933 total compares with 109,842,43 for 1931, 222,268,045 for 1930, an 473,770,970 shares during 1929.

MONTHLY STOCK SALES

(New York Stock Exchange)

	1932	1933
January	34,362,883	18,718,292
February	31,716,267	19,314,200
March	33,031,499	20,096,557
April	31,470,916	52,896,596
May	23,136,913	104,213,954
June	23,000,594	125,619,530
July	23,057,334	120,271,243
August	82,625,795	42,456,772
September	67,381,004	43,333,974
October	29,201,959	39,372,212
November	23,054,483	33,646,666
December	23,195,147	....

YEARLY SALES

(New York Stock Exchange)

	Shares of Stock
1919	316,787,725
1920	226,640,400
1921	172,712,716
1922	258,652,519
1923	236,115,040
1924	281,991,597
1925	454,404,733
1926	450,845,255
1927	576,563,218
1928	919,661,825
1929	1,124,991,490
1930	810,038,161
1931	576,738,298
1932	424,800,642*
1933	655,835,821*

* Public Ledger.

STOCK PRICES

Railroad Averages.—In conformity with the practice of previous years, the movement in stock prices for different groups of shares may be illustrated with Babson's Composite Price for different groups of selected stocks. Thus using his list of 20 representative railroad stocks, the average high for January, 1933, was 29.52. By April, however, that average had risen to 32.37, and thereafter the following three months of May, June and July showed successive advances in the average price level to 42.94, 48.60 and 56.53. Following the high of July, a substantial recession occurred in the following four months, namely to 53.81 for August, 52.56 for September, 42.98 for October, and 39.98 for November (the latest month available). The November, 1933 average compares with a low average of 13.23 for July, 1932, and the high average of 41.30 for January, 1932, and with an average monthly high of 40.89 for December, 1931, a monthly average high of 109.55 for January 1931 and the yearly high averages of 137.82 and

165.83 for 1930 and 1929. During 1929, it should be noted that these railroad shares reached the highest monthly level during September, namely 189.11. Comparing this 1929 September average with the 1932 low average of 13.23, it appears that these railroad shares declined within the three years under consideration by over 92 per cent. The November, 1933 average of 39.98, compared with the 1932 low monthly average of 13.23, shows an appreciation of about 200 per cent. Yet this November 1933 average, compared with the September high of 1929, still shows a depreciation of nearly 79 per cent.

SECURITY MARKET PRICES

(Babson's Statistical Service)

	20 Rep. R.R. Stocks		*30 Rep. Ind. Stocks*		*20 Rep. Copper Stocks*		*20 Rep. Bonds*	
	High		High		Average		Average	
	1932	1933	1932	1933	1932	1933	1932	1933
January	41.30	29.52	80.88	64.35	9.1	7.0	79.3	79.7
February	40.45	29.49	85.98	60.09	8.7	6.7	78.8	78.6
March	38.65	29.19	88.78	62.95	8.0	7.6	80.5	75.7
April	28.53	32.37	72.18	77.66	6.0	9.4	74.8	73.6
May	21.65	42.94	59.01	90.02	5.1	14.0	68.7	80.2
June	17.71	48.60	50.88	98.74	4.6	16.8	67.0	85.2
July	21.74	56.53	54.26	108.67	5.5	18.5	71.5	88.7
August	36.53	53.81	75.61	105.07	9.4	17.9	80.2	89.1
September	39.27	52.56	80.28	105.74	11.3	19.8	84.8	85.3
October	34.80	42.98	72.09	99.72	8.4	16.8	73.2	84.1
November	30.61	36.16	68.03	101.28	8.0	....	77.4	....
December	28.16	....	61.93	....	6.6	....	76.2	....

Industrial Shares.—In industrial stocks the improvement in prices during 1933 has been as favorable as was the case with the railroads. Again taking Babson's Composite Prices for 30 leading representative industrial stocks for illustrative purposes, representing the leaders in their respective lines, it appears that the January average high for 1933 stood at 64.35. For April that average rose to 77.66, and during the next three months of May, June and July the rise continued successively to 90.02, 98.74, and 108.67. Following the year's high in July, there was a minor recession. Still the average high for November, 1933 stood at 101.28, as compared with 68.03 for the corresponding month of 1932, a July low of 41.22 for 1932, a January high average for 1932 of 85.85, and with the yearly high averages for 1931, 1930 and 1929 of 149.86, 248.90 and 327.01. During 1929, it should be noted that this industrial list reached the highest monthly level during September, namely 381.17. Comparing this 1929 September average with the 1932 low average of 41.22, it appears that these industrial shares declined within the three years under consideration by nearly 90 per cent. The November, 1933 average of 101.28, compared with the 1932 low average of 41.22, shows an appreciation of about 150 per cent. At the same time, however, it should again be borne in mind that the November, 1933 average, compared with the September high of 1929, still shows a depreciation of about 74 per cent.

The Copper Group.—A similar situation presents itself in the so-called copper group of shares. According to Babson's Composite Price for 20 leading and representative copper stocks, the January average high for 1933 stood at 7.0. For April that average had risen to 9.46, and in the next three months of May, June and July continued to rise successively to 14.0, 16.08, and 18.5. Following the rise of July there was a minor recession to an average of 17.9 for the month of August. Thereafter, however, probably principally because of the influence of the threat of monetary devaluation upon metal stocks, the monthly average rose to the highest point of the year, namely 19.8 for September. Following this high point there again occurred a recession in the average figure to 16.8 for the month of October. This October average, it should be stated, compares with 6.6 for December 1932, 4.6 for June, 1932, 9.1 for January, 1932, and with yearly averages of 16.5 for 1931, 36.1 for 1930 and 74.3 for 1929. During 1929, it may be noted that the Babson list of copper shares reached the highest monthly average during March, namely 88.0. Comparing this 1929 March average with the 1932 June average of 4.6, it would appear that these copper shares declined within the three years under consideration by nearly 95 per cent. The October, 1933 average of 16.8 (the latest obtainable), compared with the 1932 average of 4.6, shows an appreciation of slightly over 265 per cent. Again, however, it is important to note that the October, 1933 average, compared with the March high of 1929 (88), still shows a depreciation of about 81 per cent.

Factors in Price Rise.—The improvement in stock market prices is attributable mainly to three factors: (1) the abundance of cheap credit, available as yet primarily for listed securities enjoying the benefits of liquidity because of a continuous market and thus furnishing an urge to those who desire to accumulate lines because of the extraordinarily low price level; (2) the tendency towards a greater purchase of goods and materials at increasing prices, owing to the constant threat of monetary inflation or devaluation, and (3) the natural tendency for business to revive since the past four years have witnessed a substantial liquidation along most important lines.

Corporate Earnings.—In many directions, substantial recoveries have occurred to improve the lot of shareholders. According to the report of the National City Bank (December), third quarter profits for 1933 show a distinct improvement in a large majority of the outstanding corporations. To quote the report: "Increasing numbers of companies that had been operating at a loss during 1932, and many during preceding years back to 1929 or even earlier, returned to a profitable basis in the second and third quarters of this year. More dividends are now being currently earned, and there is a distinct trend toward resuming or increasing dividends on common stocks and paying up cumulative dividends that have fallen in arrears on preferred stocks . . . A tabulation of the statements issued thus far by 205 industrial corporations having an aggregate net worth of $7,443,000,000 shows combined net profits, less dividends, of $129,576,000 in the third quarter of this year, as compared with a profit of $86,878,000 in the second quarter, and a net deficit of $14,831,000 in the first quarter, while in the third quarter of 1932 there was a deficit of $11,583,000."

Railroad Earnings.—For the railroads the same report points out that, "net operating income, after transportation and maintenance expenses and taxes but before interest and other fixed charges, in July was $64,307,000 against $11,287,000 last year: in August, $60,978,000 against $27,985,000; and in September (partly estimated) $60,500,000 against $49,647,000. On the basis of results for the first nine months, it is estimated that in the full year 1933 the Class I railroads as a group will approximately cover all of their fixed charges, whereas in 1932 there was a deficit before any dividends, of $153,000,000."

THE BOND MARKET

Sales. — Bond sales on the New York Stock Exchange during 1933 totalled $3,365,342,000 (*Public Ledger*) as compared with $2,966,916,000 for 1932, $3,078,595,000 for 1931, $2,779,100,000 for 1930, and $3,020,300,000 for 1929.

Prices.—The 1933 price level for investment bonds, judging from Babson's Composite Price of 20 leading representative bonds, showed a substantial depreciation until May. For

January the average price stood at 79.7, and for February, March and April declined progressively to 78.6, 75.7, and 73.6. For May, however, the average rose to 80.2, for June to 85.2, for July to 88.7, and for August to 89.1. Thereafter for the months of September and October (the latest obtainable) the average declined respectively to 85.3 and 84.1. The October average of 84.1 compares with 76.2 for December, 1932, the low average of 67.0 for June, 1932, 79.3 for January, 1932, and the yearly averages of 92.4, 96.1, and 92.6 for 1931, 1930 and 1929.

Values and Averages.—Considered as a whole the bond market of 1933 has proved much more satisfactory than was the case during 1932, and this was especially true with respect to many secondary issues which in numerous instances registered extraordinary appreciation. Although the par value of all of the listed bonds on the New York Stock Exchange (December issue, *Stock Exchange Bulletin*) increased between Jan. 1 and Dec. 1, 1933 from $41,304,000,000 to $42,010,000,000, or by $706,000,000, the total market value of these bonds increased from $31,918,000,000 to $34,180,000,000, or by $2,262,000,000. The average price for all of these bonds rose from 77.27 on Jan. 1, 1933, to 84.63 on Sept. 1, 1933, while on Dec. 1 the average stood at 81.36. This December average compares with 73.91 for Dec. 1, 1932, 72.29 for Jan. 1, 1932, and with 94.63, 95.59 and 97.51 for Jan. 1 of 1931, 1930 and 1929.

MONEY RATES

(Money Rate Data—Babson's Statistical Service)
(Gold Movements—Standard Statistical Service)

	Average Time and Call Rates in New York City				Average Bank Rates—England, France and Germany	Gold Movements *Exports Exceed Imports	
	1932		1933		1932	1932	1933
	Dom.	Call	Dom.	Call			
January.....	4	2⅝	1⅜	1	5⅙	*72,950,000	128,500,000
February....	3⅞	2½	1⅜	1¼	5	*90,567,000	8,880,000
March......	3½	2½	3	3⅜	4⅝	*24,671,000	*13,180,000
April........	3⅜	2½	2½	1⅜	3¾	*30,238,000	*9,970,000
May........	3	2½	2	1	3⅜	*195,514,000	*21,140,000
June........	2¾	2½	1⅝	1	3⅓	*206,047,000	*3,246,000
July........	2⅝	2	1½	1	3⅛	*3,437,000	*83,880,000
August......	2⅛	2	1½	1	3⅛	6,103,000	*80,390,000
September...	2⅛	2	....	....	3⅛	27,897,000	*56,740,000
October.....	1⅞	1⅜	1¼	¾	2⅚	20,611,000	*32,350,000
November...	1¾	1	1¼	½	2⅚	21,740,000	....
December...	1½	1	....	....	2⅚	101,859,000	....

THE MONEY MARKET

Trends. — With respect to both time and call loan rates, the tendency has continued much as it was during 1932 and 1931, and is indicative of a plethora of funds. New York time and call loans were often quoted at a fraction of 1 per cent, thus showing the unusual absence of demand for funds for commercial and speculative purposes.

Rates. — Beginning with a January average of 1⅜ per cent for prime commercial paper and 1 per cent for call loans in New York, the average monthly rates remained extremely low, month by month, except for March and April when the commercial paper rate rose respectively to 3 and 2½ per cent and the call rate to 3⅜ and 1⅜ per cent. Thereafter the monthly averages for commercial paper rates ranged between 2 and 1¼ per cent and the call rate average between 1⅜ and ¾ of 1 per cent. Such rates offer a strange contrast to the average monthly rate of 9⅛ per cent for call loans during the prosperous period of May and June of 1929.

Increase in Loans.—According to the *New York Stock Exchange Bulletin* (December, 1933) the borrowings of New York Stock Exchange members on security collateral have shown a substantial increase. Call loans increased between Jan. 1 and Dec. 1 of 1933 from $226,452,000 to $544,318,000, and tim loans from $120,352,000 to $244,912 000, or an aggregate increase fro $346,804,000 to $789,230,000. This las total compares with $587,159,000 fo Jan. 1, 1932, $1,893,000,000 for Jan 1, 1931, $3,989,000,000 for Jan. 1, 1930 and $6,439,000,000 for Jan. 1, 1929

VOLUME OF BANKING TRANSACTIONS

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BANK CLEARINGS

Improvement.—Owing to its published frequency, and its national comprehensiveness, this financial barometer serves better than any other in indicating the volume of banking transactions. Last year's account showed a continuation during 1932 of the abnormal decline in this index during the years 1931 and 1930. Unfortunately, owing to the national banking moratorium during the first half of the year, and the failure of some 3,000 banks to open for business following the termination of this moratorium, the 1933 figures are even less than the extremely low total of 1932. But while the total for the year is somewhat less, the showing during the second half of the year clearly indicates a substantial improvement.

Comparisons for the Whole Country.—Using the figures of the *Commercial and Financial Chronicle*, bank clearings for eleven months of 1933 (the latest available at the time of writing) with respect to a total of 170 cities, amounted to only $220,431,000,000 as compared with $235,677,000,000 for the corresponding period of 1932, or a decline of 6.5 per cent. For the eleven months the 1933 total of $220,000,000,000 compares with corresponding totals of $380,000,000,000 for 1931 and $499,000,000,000 for 1930. As an indication of the effect of the banking moratorium and other banking troubles during the first half of the year, it is important to note that the first half-year total of 1933 clearings stoo at only $114,970,000,000, as compared with the corresponding tota for 1932 of $137,679,000,000 or a decline of 16.5 per cent. For the 169 cities, exclusive of New York, the decline totalled 24.8 per cent. For the month of March, when the national moratorium was instituted total bank clearings amounted to only $16,449,999,000, as compared with $24,492,000,000 for the corresponding month of 1932, a decline of 32.8 per cent. For the 169 cities, exclusive of New York City, the March, 1933 record is 42.7 per cent under that of 1932. For April, 1933 total clearings, and clearings exclusive of the City of New York, again respectively register 26.9 per cent and 33.4 per cent under the corresponding figures for April of 1932. For May these two clearing figures, however, were only 3.2 per cent and 15.6 per cent under the corresponding figures for May, 1932. With June we find that total clearings for 1933 exceeded those of 1932 by 6.2 per cent, while for clearings for the 169 cities, exclusive of New York City, the 1933 record was only 7 per cent under that of the corresponding month for 1932. The improvement in later months is apparent, when it is noticed that the heavy declines of the earlier months were cut down to a point where the total decline for the first eleven months of the year amounts to only 6½ per cent. For the eleventh month of 1933 (November), clearings totalled $19,824,000,-

000, as compared with $18,087,000,000, for the corresponding month of 1932, or an increase of 9.6 per cent.

Transactions for New York City.—Previous issues of THE AMERICAN YEAR BOOK have called attention to the outstanding importance of New York City as the nation's principal center of speculative activity in the security market, as well as with respect to many of the leading organized commodity markets, and the importance, therefore, of segregating the volume of bank clearings for New York City from those which pertain to the rest of the country. For the first eleven months of 1933, New York clearings totalled $143,980,000,000, or nearly twice the $76,450,000,000 assigned to the remaining 169 cities reported upon by the *Commercial and Financial Chronicle.* For the first eleven months of 1932, New York City clearings totalled $146,905,000,000, or about 1.6 times the clearings for the remaining 169 cities. For the corresponding periods of 1931 and 1930 New York City clearings totalled $245,872,000,000 and $320,149,000,000. This year's New York City clearings were smaller than the total of 1932 by only about 2 per cent, but as compared with 1931 and 1930 the decline amounted respectively to 41 per cent and 58 per cent. The disproportionate showing for New York City, as compared with the rest of the country, is attributable to the substantial increase in the volume of transactions on New York's security and commodity exchanges, especially during the bull market of the first half of the year, and the extremely low business conditions prevailing throughout the rest of the country. As explained elsewhere, shares traded upon the New York Stock Exchange, for example, were not only at substantially higher prices than was the case in 1932, but the volume of sales also rose to 655,835,821 shares, as contrasted with only 349,982,705 shares for 1932. On the New York Curb Market the sale of shares increased to nearly 101,000,000 as compared with only 57,000,000 for 1932. Much the same situation was experienced on the City's numerous leading commodity exchanges, and at a considerably higher range of prices.

Transactions Outside of New York City.—Exclusive of New York City, the 1933 eleven months' total for the 169 cities reported upon by the *Commercial and Financial Chronicle,* stands at only $76,450,000,000, as compared with $88,772,000,000 for the corresponding period of 1932, or a decrease of 13.9 per cent. The figure for 1933 compares with 134,500,000,000 and 179,000,000,000 for 1931 and 1930, thus showing declines, when compared with these years, of about 43 per cent and 58 per cent. Check transactions, exclusive of New York City, represent more truly the production and commercial activities of the nation, since they eliminate the factor of heavy turn-over of speculative transactions on security and commodity exchange markets. From that standpoint the extremely low 1933 total affords evidence of the low point to which general business conditions had retrograded. Earlier months in the year, as already explained under this section, showed an appalling decline in clearings outside of New York City as compared with the corresponding months of 1932. Thus for March and April, the decreases, in comparison with the same months of 1932, amounted to 42.7 and 33.4 per cent.

BANK CLEARINGS BY FEDERAL RESERVE DISTRICTS

December figures for 1933 (*Commercial and Financial Chronicle*) clearly show a decided improvement as compared with the earlier months of the year, and lend hope to the belief that the Nation has passed the low point of the depression industrially, and that things are now on the mend. For the week ended Dec. 23, clearings for the various Federal Reserve Districts show the following increases as compared with the corresponding week of 1932: Boston district (12 cities) +6.2%; New York (12 cities) +5.4%; Cleveland (5 cities) +1.9%; Atlanta (10 cities) +22.7%; Chicago (19 cities) +11.2%; St. Louis (4 cities)

+15.8%; Minneapolis (7 cities) +12.3%; Kansas City (9 cities) +8.4%; Dallas (5 cities) +31.9%; and San Francisco (13 cities) +9.2%. In only two Federal Reserve districts, namely Philadelphia (9 cities) and Richmond (6 cities) are decreases registered, namely 13.6% for the Philadelphia and 4.9% for the Richmond districts. For the 111 cities comprised within the aforementioned record, inclusive of New York City, the increase is 5.1%, as compared with the corresponding week of last year. With New York City excluded, the increase is 4.5%. The predominant importance of New York City should again be noted, that City's total for the week of $3,009,000,000 comparing with $1,727,000,000 for all of the balance of the cities.

YEARLY TOTALS

	Exclusive of New York	Inclusive of New York
1933....	$84,040,850,549	$241,454,844,300
1932....	96,495,830,646	256,634,294,429
1931....	147,067,772,606	410,338,166,564
1930....	196,785,442,067	543,894,970,187
1929....	250,494,561,030	727,736,843,191
1928....	242,144,679,206	633,872,155,470
1927....	233,875,528,415	555,109,742,076
1926....	233,418,828,972	523,773,772,455
1925....	228,596,560,498	512,215,805,135
1924....	205,891,161,152	455,759,342,491
1923....	199,456,248,672	413,452,431,399
1922....	173,606,925,839	391,507,311,955
1921....	161,256,972,863	355,588,192,536
1920....	206,592,968,076	449,727,981,440
1919....	181,982,219,804	417,784,854,691

CHECK TRANSACTIONS

(Commercial and Financial Chronicle)

	Exclusive of New York		Inclusive of New York	
	1932	1933	1932	1933
January..........	$9,763,649,984	$7,489,834,008	$26,447,984,113	$20,135,759,034
February........	8,114,829,518	6,224,757,132	21,333,355,246	18,388,473,930
March...........	8,876,687,161	4,955,369,914	24,486,131,521	16,451,695,180
April............	8,857,550,480	5,908,260,763	22,826,372,573	16,697,083,774
May............	7,928,232,424	6,683,801,527	20,667,501,203	20,044,745,772
June............	8,016,623,719	7,446,854,878	21,918,490,620	23,271,434,469
July............	7,620,804,797	7,989,017,907	19,296,068,085	24,050,889,372
August..........	7,339,574,546	7,293,966,584	20,006,557,435	20,710,733,315
September.......	7,323,079,869	7,278,406,273	20,601,940,247	19,736,181.276
October.........	7,746,102,664	6,490,502,775	20,006,115,358	19,822,502,632
November.......	7,185,801,703	8,588,227,409	18,087,617,562	21,114,240,815
December.......	7,722,893,781	7,651,851,379	20,956,160,466	21,031,104,731

FOREIGN TRADE

BY ROLAND L. KRAMER

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EXPORT AND IMPORT SHRINKAGE

Foreign trade continued the decline that began in 1930, and in the calendar year 1932 amounted to $2,934,000,000 compared with the 1931 total of $4,515,000,000. Export trade, including re-exports, dropped 33 per cent in value and totaled $1,611,000,000. Imports suffered a greater dollar shrinkage, declining 37 per cent to $1,323,000,000. Exports were the lowest they have been since 1904 and imports the lowest since 1908.

On the basis of volume of trade, the Department of Commerce estimates the decline of exports in 1932 to have been 23 per cent, while import volume declined approximately 20 per cent. The Department places the decline of the 1932 average unit value of exports at 15 per cent and of imports at 22 per cent. In summary, exports in 1932 as compared with 1931 fell off 33 per cent but due to export price reductions of 15 per cent, the volume of export trade was off 23 per cent. In imports, the shrinkage of 37 per cent represented a volume reduction of only 20 per cent due to a decline of 22 per cent in the unit value of imported merchandise.

EXPORTS, IMPORTS, AND BALANCE OF TRADE OF THE UNITED STATES
(Values in millions of dollars. Data 1910-14, years ended June 30; thereafter, calendar years

Yearly average or year	Merchandise					Excess of exports (+) or imports (−)			
	Exports			General imports	Per cent imports were of exports	Merchandise	Gold	Silver	Merchandise, gold, and silver
	Total	United States merchandise	Re-exports of foreign merchandise						
1910-14.......	2,166	2,130	35	1,689	78.0	+477	+17	+20	+515
1921..........	4,485	4,379	106	2,509	55.9	+1,976	−667	−12	+1,297
1922..........	3,832	3,765	67	3,113	81.2	+719	−238	−8	+473
1923..........	4,167	4,091	77	3,792	91.0	+375	−294	−2	+79
1924..........	4,591	4,498	93	3,610	78.6	+981	−258	+36	+759
1925..........	4,910	4,819	91	4,227	86.1	+683	+134	+35	+852
1926..........	4,809	4,712	97	4,431	92.1	+378	−98	+23	+303
1927..........	4,865	4,759	107	4,185	86.0	+681	−6	+21	+695
1928..........	5,128	5,030	98	4,091	79.8	+1,037	+392	+19	+1,448
1929..........	5,241	5,157	84	4,399	83.9	+842	−175	+19	+686
1930..........	3,843	3,781	62	3,061	79.6	+782	−280	+11	+514
1931..........	2,424	2,378	46	2,091	86.2	+334	−145	−2	+186
1932..........	1,611	1,576	35	1,323	82.1	+288	+446	−6	+729

FOREIGN TRADE IN 1933

Mid-Year Expansion. — Foreign trade continued to decline during the first part of 1933 but at the middle of the year, the trend was reversed and June witnessed an increase in exports and imports over the preceding June. This expansion in foreign trade continued substantially during July, August and September. As a result of this change, exports for the first nine months of 1933 were only 7 per cent less than in the same period of 1932, after having suffered a reduction, for the first six months, of 20 per cent. Similarly, imports which for the six months period showed a decline of 20.7 per cent exhibited a 2 per cent increase for the nine months period. The export balance of merchandise trade for the nine months ended September, 1933, was only $68,300 compared with $171,800 in 1932. Net gold exports for the nine months period amounted to $131,200 as against $589,400 in the corresponding period of the preceding year.

U. S. FOREIGN TRADE BY MONTHS
(January to September, 1932 and 1933)
(In thousands of dollars)

	Exports		Imports	
	1932	1933	1932	1933
January..............................	150,000	121,000	136,000	96,000
February............................	154,000	102,000	131,000	84,000
March...............................	155,000	108,000	131,000	95,000
April.................................	135,000	105,000	127,000	88,000
May..................................	132,000	114,000	112,000	107,000
June.................................	114,000	120,000	110,000	122,000
July..................................	107,000	144,000	80,000	143,000
August..............................	108,000	131,000	91,000	155,000
September.........................	132,000	160,000	98,000	147,000
Total, 9 months................	1,187,000	1,105,000	1,016,000	1,037,000

Foreign Market Distribution.—The expansion in the export trade beginning in June, 1933, was mainly in the direction of Latin America and Europe. Mexico, Colombia, Venezuela, Argentina, Brazil, Chile, Central American countries, Belgium, Poland and Danzig, Italy, Spain and South Africa were the principal markets in which the increase occurred. The improvement in the import trade was chiefly with Europe, Asia, Africa and Oceania. Among the important countries for which imports during the nine months of 1933 exceeded receipts during the same period of 1932 were Belgium, Czechoslovakia, Denmark, France, Germany, Netherlands, Norway, Sweden, Switzerland, Russia, United Kingdom, Spain, western Asia, India, British Malaya, Philippine Islands, China, Australia, New Zealand, West Africa, South Africa, Uruguay and Peru.

EXPORT TRADE MOVEMENTS

Gold and Silver.—Gold movements out of the country reached a high peak of $809,500,000 but imports of gold, particularly heavy during the last half of 1932, amounted to $363,300,000, leaving a net export of gold of $446,200,000. However, $457,500,000 in gold was released from earmark, making actually a net import of $11,000,000. Silver again showed a net import, exports amounting to $13,850,000 and imports to $19,650,000.

FOREIGN TRADE IN MERCHANDISE, BY ECONOMIC CLASSES

(Values in millions of dollars. Data for 1910-14 cover years ended June 30, all other are for calendar years)

Yearly average or year	Total value	Crude materials		Crude foodstuffs		Manufactured foodstuffs		Semi-manufactures		Finished manufactures	
		Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
EXPORTS OF UNITED STATES MERCHANDISE											
1910–14.....	2,130	713	33.5	127	5.9	295	13.8	342	16.0	654	30.7
1921........	4,379	984	22.5	673	15.4	685	15.7	410	9.4	1,627	37.1
1922........	3,765	988	26.3	459	12.2	588	15.6	438	11.6	1,292	34.3
1923........	4,091	1,208	29.5	257	6.3	583	14.3	564	13.8	1,478	36.1
1924........	4,498	1,333	29.6	393	8.7	573	12.8	611	13.6	1,588	35.3
1925........	4,819	1,422	29.5	318	6.6	574	11.9	662	13.7	1,843	38.3
1926........	4,712	1,261	26.8	335	7.1	503	10.7	656	13.9	1,957	41.5
1927........	4,759	1,193	25.1	421	8.8	463	9.7	700	14.7	1,982	41.6
1928........	5,030	1,293	25.7	295	5.9	466	9.3	716	14.2	2,260	44.9
1929........	5,157	1,142	22.2	270	5.2	484	9.4	729	14.1	2,532	49.1
1930........	3,781	829	21.9	179	4.7	363	9.6	513	13.6	1,898	50.2
1931........	2,378	567	23.8	127	5.3	247	10.4	318	13.4	1,120	47.1
1932........	1,576	514	32.6	89	5.7	152	9.7	197	12.5	624	39.6
GENERAL IMPORTS											
1910–14.....	1,689	595	35.2	203	12.0	194	11.5	307	18.2	389	23.1
1921........	2,509	859	34.2	300	12.0	368	14.7	362	14.4	620	24.7
1922........	3,113	1,180	37.9	330	10.6	387	12.4	553	17.8	663	21.3
1923........	3,792	1,407	37.1	363	9.6	530	14.0	721	19.0	771	20.3
1924........	3,610	1,258	34.9	425	11.8	522	14.4	665	18.2	749	20.8
1925........	4,227	1,748	41.4	495	11.7	433	10.2	755	17.9	796	18.8
1926........	4,431	1,793	40.5	540	12.2	418	9.4	804	18.1	877	19.8
1927........	4,185	1,601	38.3	505	12.1	451	10.8	750	17.9	879	21.0
1928........	4,091	1,467	35.8	550	13.4	406	9.9	763	18.6	906	22.2
1929........	4,399	1,559	35.4	539	12.2	424	9.6	885	20.2	994	22.6
1930........	3,061	1,002	32.7	400	13.1	293	9.6	608	19.9	757	24.7
1931........	2,091	642	30.7	305	14.6	222	10.7	372	17.8	549	26.3
1932........	1,323	358	27.1	233	17.6	174	13.1	217	16.4	341	25.7

Refined petroleum, second only to raw cotton among all exports, registered a value of $168,000,000 compared with $232,000,000 in 1931. This decline of 27 per cent in value represented a shrinkage of 24 per cent in volume, indicating for refined petroleum products a relatively stable price situation.

Machinery.—Machinery exports of all classes, now the third largest export item, amounted to $131,700,000, a severe shrinkage of nearly 59 per cent from the 1931 figure of $316,800,000. Industrial machinery was off nearly 60 per cent to $58,500,000. Electrical machinery and apparatus exports, valued at $43,000,000 were down approximately 50 per cent. The greatest decline in this group occurred in agricultural machinery and implements. Exports amounted to $10,500,000 compared with $57,400,000 in 1931, a reduction of 82 per cent.

Automobiles, parts and accessories dropped to fifth place in the list of exports, shipments amounting to $76,300,000 a shrinkage of nearly 50 per cent. The reduction in the number of units of passenger cars and trucks exported was substantially the same. Automobile casings, with a quantity reduction of nearly 49 per cent were off almost 60 per cent in value and amounted to $7,800,000.

Cotton.—Exports of cotton manufactures were tenth in the list of exports and were valued at $44,000,000, a reduction of 25 per cent. Sixty-five per cent of this group was comprised of cotton cloth, duck and tire fabric of which the quantity exported was 2.3 per cent greater than in 1931.

Iron and Steel.—Exports of advanced iron and steel manufacturers were valued at $20,000,000, a decline of nearly 50 per cent from the preceding year.

Rubber manufactures shipped abroad declined in value to less than half the 1931 figure, registering only $16,400,000.

Crude materials, the second largest commodity group of exports, registered a decline in value of only 9.4 per cent from the 1931 total and comprised 32.6 per cent of domestic exports compared with a proportion of 23.8 per cent in the preceding year. The improvement in this group was largely attributed to the expansion in exports of unmanufactured cotton. Not only was cotton again the leading commodity exported, but it accounted for nearly 22 per cent of total exports compared with 15 per cent in 1931. Shipments of unmanufactured cotton rose almost to 10,000,000 bales, an increase of 31 per cent in volume, and the value of $345,200,000 was approximately 7 per cent in excess of the 1931 value. Approximately two-thirds of the exports of crude materials consisted of raw cotton.

Semi-manufactured exports comprised 12.5 per cent of exports compared with 13.4 per cent in the preceding year. Shipments of chemicals and related products, the leading commodity in the group and sixth in the list of all exports, were reduced 30 per cent in value to $70,400,000. This recession occurred in spite of quantitative increases in some chemical lines, such as carbon black, some fertilizers, coal tar pitch and borax. The tonnage of iron and steel mill products exported was 38.5 per cent less and, with a decline of 54 per cent in reported value, registered $28,900,000. Lumber sales were 31 per cent less on a quantity basis and, with a value of $26,300,000 were 42 per cent below the 1931 figure. Copper shipments were drastically reduced, declining 41 per cent in tonnage and over 60 per cent in value to $21,200,000. Furs and manufactures were valued at $13,500,000 and leather at $13,200,000.

Manufactured Foodstuffs.—Exports of manufactured foodstuffs accounted for 9.7 per cent of domestic shipments compared with 10.4 per cent in 1931. The leading item in the group and eighth in the list of exports was packing-house products, which declined 11.7 per cent in volume and nearly 40 per cent in value to $56,900,000. Lard, the leading sub-item, showed a reduction of only 4 per cent in volume but a recession of over 40 per cent in value, and registered $32,000,000. Meat products alone were off 24.6 per cent in quantity and almost 50 per cent in value, and amounted to $19,000,000. Shipments of wheat flour were off 40 per cent in quantity and about 50 per cent in value to $18,400,000.

Crude foodstuffs comprised 5.7 per cent of domestic exports compared with 5.3 per cent of the total last year. The leading commodity in the group and fourth in the list of individual exports was fruits and nuts at a value of $77,300,000, a reduction of 30 per cent below last year's figure. Price decline largely accounted for the shrinkage in exports of fruits and, nuts, as fresh apples and canned fruit, two leading items, were reduced in volume only 4.9 and 6.4 per cent, respectively. Shipments of wheat were off nearly 32 per cent in quantity and 34 per cent in value to $32,700,000. Wheat prices were fairly well maintained in comparison with the reductions in the prices of some products.

IMPORT TRADE MOVEMENTS

Crude Materials.—Although crude materials continued the leading group of imports, the percentage of total imports so comprised dropped from 30.7 to 27.1. Crude materials suffered the greatest shrinkage of any of the import commodity groups, *viz.* 44.2 per cent. After five years of supremacy, raw silk fell from first to second place in the import list. On a quantity basis, imports of raw silk were 11.7 per cent less while the value of $113,900,000 represented a decline of 40 per cent. The tonnage of crude rubber purchased was 17.4 per cent less and the value was down 56 per cent to $32,500,000. The volume of crude petroleum imports was slightly lower than last year but the recorded value was $30,400,000, a recession of approximately 25 per cent. Unmanufactured tobacco was 23.6 per cent less in quantity and 40 per cent in value to $23,000,000. Purchases of hides and skins, on a volume basis, were reduced nearly 30 per cent and at a value 56 per cent less, receipts were valued at $22,500,000. Both rubber and hides and skins were particularly affected by drastic unit price reductions.

Finished Manufactures. — Imports of finished manufactures were slightly lower in relative position, comprising 25.7 per cent compared with 26.3 per cent in 1931. Receipts of newsprint on a tonnage basis, were off 13.3 per cent and the value of $84,700,000 was nearly 25 per cent less. Newsprint was again the fourth leading article of import. Advanced and refined petroleum products were reduced 22 per cent in volume and 44 per cent in value to $29,200,000. Imports of cotton manufactures declined to $28,000,000, or 30 per cent lower than last year. Manufactures of vegetable fibres were valued at $20,000,000, approximately one-third less than 1931. Imports of art works were off more than one-half, the value being $18,500,000. With a quantitative reduction of nearly 21 per cent, burlaps were down almost 40 per cent in value to $16,900,000. Wool manufactures, dropped to $12,700,000 from $22,900,000 and leather manufactures to $9,800,000 from $22,100,000 in 1931.

Crude foodstuffs became the third leading group of imports, rising in relative importance from 14.6 per cent to 17.6 per cent of the total. Foodstuff imports, both crude and manufactured, were much less drastically reduced than were the other groups. Coffee became the leading imported commodity, receipts on a tonnage basis being 13.8 per cent less than in 1931 while the value of $136,800,000 represented a reduction of approximately 22 per cent.

Semi-manufactures, with 16.4 per cent of total imports, dropped to fourth place. Paper base stocks were sixth in the list of imported commodities and declined nearly 30 per cent to $54,400,000. Wood pulp, the leading item in the paper base stocks group, showed a tonnage reduction of 7 per cent but a recession of 23 per cent value in to $47,000,000. Chemicals, seventh leading imported commodity, were valued at $47,900,000, a shrinkage of nearly 42 per cent. Fertilizers fell off heavily, the reductions being 39 per cent in quantity and 60 per cent in value to $17,900,000. Expressed vegetable oils were off 17.8 per cent in volume and nearly 40 per cent in value to $29,300,000. Furs and manufactures were valued at $28,500,000, a reduction of approximately one-half while copper was off more than one half to $23,700,000. The quantity decline in copper was 33 per cent. Imports of tin, at 47 per cent less by volume and 55 per cent by value, amounted to $16,500,000.

Manufactured foodstuffs increased shipments proportionately from 10.7 per cent of the import trade in 1931 to 13.1 per cent in 1932. Cane sugar, third leading individual imported commodity, declined 6.4 per cent in tonnage and 14 per cent in value to $96,700,000. Fish was off only 4.8 per cent in volume but 25 per cent in value, and registered $21,400,000. Imports of vegetables and preparations declined 27 per cent to $16,700,000 and dairy products were down 17 per cent to $13,100,000. Tea receipts were 9.2 per cent greater in volume but one-third less in value and amounted to $12,500,000.

FOREIGN MARKETS

Europe.—Exports to nearly all continents were lower by percentages ranging from 33.9 to 40.0 but to Oceania and Asia, the decline was

FOREIGN TRADE BY CONTINENTS AND GREAT TRADE REGIONS

NOTE:—Exports include re-exports of foreign goods. Data for 1910-14 cover years ended June 30; all other are for calendar years. The Philippine Islands are included in Asia for all years; Turkey in Europe is included in Asia beginning 1928.

[Values in millions of dollars]

Yearly average or year	Total	North America				South America		Europe		Asia		Oceania		Africa	
		Northern		Southern											
		Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
EXPORTS															
1910–14..	2,166	320	14.8	181	8.4	121	5.6	1,350	62.3	121	5.6	48	2.2	25	1.1
1921.....	4,485	600	13.4	529	11.8	273	6.1	2,364	52.7	533	11.9	113	2.5	73	1.6
1922.....	3,832	583	15.2	332	8.7	226	5.9	2,083	54.4	449	11.7	102	2.7	56	1.5
1923.....	4,167	661	15.8	426	10.2	269	6.5	2,093	50.2	511	12.3	146	3.5	61	1.5
1924.....	4,591	634	13.8	456	9.9	314	6.8	2,445	53.3	515	11.2	157	3.4	70	1.5
1925.....	4,910	659	13.4	480	9.8	403	8.2	2,604	53.0	487	9.9	189	3.9	89	1.8
1926.....	4,809	748	15.5	429	8.9	444	9.2	2,310	48.0	565	11.7	213	4.4	101	2.1
1927.....	4,865	845	17.3	408	8.4	438	9.0	2,314	47.6	560	11.5	194	4.0	107	2.2
1928.....	5,128	924	18.1	397	7.7	481	9.4	2,375	46.3	655	12.8	180	3.5	117	2.3
1929.....	5,241	961	18.3	434	8.3	539	10.3	2,341	44.7	643	12.3	192	3.7	131	2.5
1930.....	3,843	671	17.5	349	9.1	338	8.8	1,838	47.8	448	11.6	108	2.8	92	2.4
1931.....	2,424	404	16.7	187	7.7	159	6.5	1,187	49.0	386	15.9	42	1.7	60	2.5
1932.....	1,611	246	15.0	120	7.4	97	6.0	784	48.7	292	18.1	37	2.3	36	2.2
GENERAL IMPORTS															
1910–14..	1,689	119	7.0	229	13.5	207	12.2	836	49.5	259	15.3	17	1.0	23	1.3
1921.....	2,509	338	13.5	417	16.6	296	11.8	765	30.5	618	24.6	35	1.4	40	1.6
1922.....	3,113	367	11.8	456	14.6	359	11.5	991	31.8	827	26.6	49	1.6	65	2.1
1923.....	3,792	418	11.0	583	15.4	467	12.3	1,157	30.5	1,020	26.9	59	1.6	87	2.3
1924.....	3,610	402	11.1	593	16.4	466	12.9	1,096	30.4	931	25.8	49	1.4	73	2.0
1925.....	4,227	459	10.9	522	12.3	519	12.3	1,238	29.3	1,319	31.2	78	1.8	92	2.2
1926.....	4,431	486	11.0	526	11.9	568	12.8	1,286	29.0	1,401	31.6	68	1.5	96	2.2
1927.....	4,185	484	11.6	501	12.0	518	12.4	1,276	30.5	1,257	30.0	55	1.3	93	2.2
1928.....	4,091	500	12.2	461	11.3	569	13.9	1,249	30.5	1,169	28.6	53	1.3	90	2.2
1929.....	4,399	514	11.7	467	10.6	640	14.5	1,333	30.3	1,280	29.1	57	1.3	109	2.5
1930.....	3,061	414	13.5	347	11.3	434	14.2	909	29.7	856	28.0	33	1.1	68	2.2
1931.....	2,091	277	13.3	240	11.5	307	14.7	640	30.6	574	27.5	19	.9	33	1.6
1932.....	1,323	181	13.7	157	11.9	201	15.2	389	29.4	362	27.4	8	.6	24	1.8

11.5 and 24.4 per cent, respectively. The position of Europe as a market for United States exports was substantially unchanged, accounting for 48.7 per cent of total exports compared with 49.0 per cent in 1931. The United Kingdom was again our leading world market, taking $288,300,000 of American merchandise, a reduction of 36.8 per cent below last year.

Asia continued its relative improvement in American export trade, taking 18.1 per cent of the total compared with 15.9 per cent last year. Japan, third leading export market, took $134,500,000 worth of merchandise, a decline of 13.6 per cent. Exports to China, our sixth largest market, were valued at $67,100,000 a reduction of 41.4 per cent. Sales to the Philippine Islands were off only 8 per cent and amounted to $45,000,000. British Indian purchases were 32 per cent less and registered $24,900,000.

Northern North America took 15 per cent of total exports compared with 16.7 per cent in 1931. Canada was again our second largest market, purchasing $241,400,000 of American merchandise, a drop of 39 per cent.

Latin America. — Sales to Latin America (comprising Southern North America and South America) were also proportionately lower, accounting for 13.4 per cent of total exports. Mexico, eleventh world market, was our leading Latin-American customer last year, taking $32,500,000 of merchandise. This figure represents a decline of 37.9 per cent. Argentina, our twelfth market, purchased $31,100,000 worth of American goods, a reduction of 41 per cent. Exports to Cuba were off 38.8 per cent to $28,800,000 while shipments to Brazil, valued at $28,600,000 showed an increase of 0.1 per cent. Brazil was the only important world market in which our exports were greater than in 1931. Chilean purchases suffered an enormous decline of 83.4 per cent, and amounted only to $3,600,000.

Oceania. — Shipments to Oceania showed a relative improvement, rising from 1.7 to 2.3 per cent of total exports while the decline in dollar value was only 11.5 per cent. Australian purchases amounted to $26,800,000, a loss of only 1.3 per cent while exports to New Zealand were off 32 per cent to $9,250,000.

SOURCE OF IMPORTS

Changes in the sources of American imports were insignificant. Europe was again the leading continent and supplied 29.4 per cent of total imports compared with 30.6 per cent in 1931. Asia, second largest continental source of imports, occupied practically the same relative position as last year, supplying 27.4 per cent of total imports. Imports from Latin America were relatively more important, comprising 27.1 per cent of the total compared with 26.2 per cent in 1931. Brazilian shipments were off about one-fourth, imports amounting to $82,100,000. Brazil occupied third position among all countries shipping to the United States. Imports from Northern North America, comprised 13.7 per cent of the total, compared with 13.3 per cent in 1931. Canada was again our largest source of foreign merchandise. Purchases from Canada amounted to $174,100,000, a loss of 34.6 per cent. Shipments from Africa were proportionately improved, with 1.8 per cent of the total against 1.6 per cent in 1931. Receipts from Australia were down nearly 63 per cent to $4,600,000 while New Zealand showed a decline of 51.3 per cent, imports being valued at $2,200,000.

RAILROAD TRAFFIC AND EARNINGS

By G. Lloyd Wilson

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The year 1933 was a critical year in the affairs of the railroads and one which railroad men generally were pleased to see ended with a somewhat better tone than during the early and middle months. The railroads are not out of the economic woods yet but there appear to be a few glimpses of blue sky above the tree tops which were not so apparent only a few months ago.

RAILROAD MILEAGE

The first factor in an appraisal of the railroad transportation system and traffic situation at the present time is mileage in operation. There has been little change in the number of miles of main tracks operated by American railroads since 1920, due to the fact that the legal and economic obstacles in the way of abandonment make it difficult for the railroads to tighten their belts in this way in years of economic stress, much as some railroads would have liked to retrench. The latest available figures for the main-line mileage of the Class I railroads, those with railway operating incomes of over $1,000,000 per annum, place the mileage at a little over 242,000 miles. About 9,000 miles of main line are operated by Class II and Class III carriers, those earning railway operating incomes of between $100,000 and $1,000,000 per annum, and less than $100,000 per annum, respectively. The Class I carriers operated approximately 235,000 miles of main-track in 1920, so that the changes in railroad mileage in recent years have been negligible. There has been, moreover, but little change in the total mileage of railroad trackage operated. Class I, II and III carriers in 1933 operated a little less than 430,000 miles of track, including main tracks; second, third and fourth and other main tracks; yard tracks and sidings. About 95 per cent of the total trackage is operated by Class I carriers. The total trackage operated by all railroads in 1920 amounted to a little over 406,500 miles. There was an increase of 1,000 to 3,000 miles each year from 1920 to 1929. Since that time the mileage has remained practically stationary, new additional mileage being just about set-off or a little more than set-off by abandonments.

RAILROAD EQUIPMENT

Locomotives.—The number of locomotives in service on Class I railroads has decreased steadily year by year since 1924, just as each year prior to 1924 witnessed an increase. In 1924 there were 65,358 locomotives in service on Class I American railroads. At the beginning of 1933, the latest available figure, there were 53,200, a decrease of more than 12,000 or 19 per cent. This reduction reflects not only decreased locomotive purchases, and losses in traffic, but the replacement of the smaller obsolete locomotives with a smaller number of larger locomotives. This tendency is reflected even more clearly in the statistics of average and total locomotive tractive power. Each year there has been an increase in the average tractive power per locomotive and each year until 1926 showed an increase in the total tractive power of all locomotives in service. In 1924, the year in which the largest number of locomotives were in service, the average tractive power was 39,891 pounds per locomotive, and the total tractive power aggregated 2,593,178,015 pounds. The average tractive power at the beginning of 1933 was 46,400 pounds, an increase of more than 18 per cent over the average in 1924 and of more than 64 per cent over the average in 1911. The total locomotive tractive power reached its peak in 1926 at 2,611,237,975 pounds. There has been a steady annual decrease since, until 1933 when the latest available figure places the total tractive power at about 2,400,000,000 pounds. The heavy losses of freight and passenger traffic in recent years have caused the railroads to retire worn-out and obsolete equipment, and to lay-up large numbers of locomotives awaiting increased traffic. It is estimated that the railroads have retired nearly 30,000 locomotives in the last eleven years, about 9,000 of which have been retired since 1929. In the last eleven years the Class I railroads have expended more than $850,000,000 in improved locomotive equipment.

Freight Cars. — The decrease in the number of freight cars in service in recent years reflects several factors; first, replacement of worn-out and obsolete cars with a smaller number of better and larger cars; second, decreased freight car purchases, and, third, decline in freight traffic. The number of freight cars in service has decreased each year since 1925, when 2,357,234 cars were in service on Class I railroads. At the end of 1932 there were 2,130,000 freight cars in service according to the latest estimate, and the number is doubtless lower in 1933 although official figures are not yet available. There are now about as many freight cars in service on Class I railroads as in 1911. The average carrying capacity has been increased steadily year by year, and is now over 47.2 tons per car, as compared with 44.8 tons per car in 1925, the year of peak numbers and with an average of 42.4 tons in 1920 and 36.9 tons in 1911. The increased capacity is the result of improvements in car design and construction, particularly in the use of all-steel and steel-underframe construction. In recent years there has been a tendency to consider the construction of certain types of cars of lower carrying capacity in order to accommodate special traffic and smaller trade units, and to provide smaller equipment to meet motor competition and for use in fast freight service. There have also been reductions in the aggregate carrying capacity of freight cars despite the steady increase in average carrying capacity due to the decreasing number of cars in service. The peak year for total freight car carrying capacity was 1926, when it exceeded 105,950,000 tons. There has been a steady decrease since to approximately 100,000,000 tons in 1933. The figures cited above do not include the equipment data for Class II or Class III railroads, nor the private freight cars owned and operated by car lines or by industrial concerns. Class I railroads have expended over $1,980,000,000 since 1922 in enlarging and improving freight car equipment.

Passenger Cars.—The number of passenger train cars in the service of Class I railroads has decreased steadily since 1924 when the railroads had over 55,000 passenger cars in service. The number now in use is about 49,000, a decrease of about 10 per cent. This is exclusive of cars owned and operated by the Pullman Company. This decrease reflects the construction of smaller and obsolete passenger cars, as well as decreased purchases and declining passenger traffic and revenues. The railroads have recently made experimental installations of gasoline and gas-electric propelled passenger carrying equipment, and there has been much discussion in 1933 of radical changes in passenger services and equipment. Since 1922, the Class I railroads have invested over $400,000 in new and improved passenger equipment. In December, 1933, the Federal Coördinator of Transportation canvassed the views of various types of actual and potential railroad passengers, seeking suggestions on passenger service and equipment, in order to stimulate traffic if possible.

ROADWAY AND STRUCTURES

The railroads have continued to replace the old and light rail with new, heavier and better-ballasted tracks, and to improve structures, although the pace of reconstruction has been reduced materially since 1929. The average weight of rail now in use is over 91 pounds per yard as compared with about 83.5 pounds per yard in 1922. About 10,000 miles of the Class I railroad system is laid with rail lighter than 60 pounds per yard; about 21,000 miles are laid with rail heavier than 120 pounds, and the rest is equipped with 60- to 120-pound rail.

IMPROVEMENT EXPENDITURES

The Committee on Public relations of the Eastern Railroads reported near the close of 1933 that the Class I railroads have made gross expenditures of $7,700,095,000 in the last eleven years in enlarging and improving their properties for efficiency of operation. These gross expenditures aggregated $4,297,165,000 for roadways and structures, distributed among the following items: additional track, $1,174,454,000; heavier rail,

$378,199,000; additional ballast, $122,511,000; shops and engine houses, $320,378,000, and all other roadway and structure improvements, $2,301,623,000. The total gross expenditures of $3,402,930,000 for equipment were divided as follows: freight-train cars, $1,980,803,000; locomotives $851,428,000; passenger-train cars, $407,651,000, and other equipment $163,048,000. Outstanding improvements in railroad facilities instituted or continued in 1933 include:

1. An increase in the use of high-speed railway passenger equipment.
2. Improvements in the air-conditioning of long-distance passenger trains.
3. Continued development of stateroom, compartment sleeping car facilities and "single-occupancy" section use of sleeping cars.
4. The opening of several new and palatial railroad passenger stations.
5. Continued progress in railroad electrification.
6. Increase in size, seating arrangements, lighting and ventilation of passenger cars.
7. Use of buffer and "self-service" dining cars.
8. Increase in freight train speed.
9. Increase in average tractive power of locomotives.
10. Increase in average carrying capacity of freight cars.
11. Progress in development of terminal facilities for handling perishable freight traffic.
12. Increased use of automotive vehicles in store-door collection and delivery services.

EMPLOYEES AND WAGE PAYMENTS

Number of Employees.—The average number of persons employed by Class I railroads in 1932, the latest available year, was 1,031,914 as compared with 1,258,719 in 1931; 1,487,839 in 1930; 1,660,850 in 1929; 1,656,411 in 1928; 1,735,105 in 1927, and 1,779,275 in 1926. Each year since 1926 there has been a decrease in the number of employees. At present there are a little over half the total number of employees in the peak year of railroad employment which was 1920, when 2,022,832 persons were employed.

Payrolls have also fallen, due to the reductions in the number of employees and to wage deduction agreements. In 1932, the total railroad payroll was $1,512,821,975 as compared with $2,094,994,379 in 1931, $2,550,788,519 in 1930, and $2,896,566,351 in 1929, the first year of the present declining payroll cycle. The peak year in railroad payroll payments as in railroad employment was 1920 when wage payments aggregated $3,681,801,193.

The Emergency Railroad Transportation Act, 1933, enacted by Congress April 16, 1933, contained provisions to check declining railroad employment and wages. The Federal Coördinator of Transportation and the regional labor committees were directed to confer before taking any action which would affect the interests of railroad employees. The Act provided that the number of employees in the service of any carrier should not be reduced by reason of any action taken pursuant to the authority of the Coördinator below the number as shown by the payrolls of employees in service during the month of May, 1933, after deducting the number removed from the payrolls after the effective date of the Act by reason of death, normal retirements, or resignations. The number of such removals may not exceed 5 per cent of the number of employees in service during May, 1933. The law also provides that no railroad employee may be deprived of employment such as he had during May, 1933 nor be placed in a worse position with respect to his compensation by reason of any action taken pursuant to the authority conferred by the Act.

Railroad wages were at the highest point in history in 1920 when the average railroad employee received annual wages of approximately $1,820. The trend was downward, as a result of adjustments made through the defunct Railway Labor Board or through individual wage and salary reductions until 1924, when the average wage was $1,613. Between 1925 and 1929 wages tended to increase from $1,639 in 1925 to $1,744 in 1929. Average annual wages have fallen steadily from 1929 to the present, $1,714 in 1930, $1,664 in 1931 and $1,466 in 1932, the latest year for which figures are now available. The decreases are due to percentage wage decreases, and to reductions in the average number of hours worked per employee. The figures used here are for Class I railroads.

Classification of railroad employees and their average compensation for Class I railroads, including large switching and terminal companies are interesting. Executives, officials and staff assistants totalling 13,616 employees received average compensation of $5,234. Professional, clerical and general employees aggregated 185,165 persons and received average annual compensation of $1,604. Maintenance of way and structure employees totalled 215,887 persons and received on the average $908 per year. Maintenance of equipment and stores employees numbered 282,971 persons, and their average compensation was $1,237 per year. Transportation employees, excluding train and engine service employees, aggregated 134,265 persons and received an average annual wage of $1,355. Yard masters, switch tenders and hostlers numbered 14,112 persons with average annual compensation of $2,016. Train and engine service employees, including enginemen, firemen, conductors and brakemen totalled 202,552 persons, and their annual wages were $2,031.

RAILROAD INVESTMENT

Additions and Betterments.—The gross expenditures of Class I railroads for additions and betterments have been decreased sharply in recent years as a result of traffic losses and credit stringency. The expenditures in 1932 amounted to $167,194,000, 54 per cent less than the $361,912,000 spent for additions and betterments in 1931. The amounts expended in previous years indicate how greatly the railroads have retrenched in this direction. Expenditures in 1930 were $872,608,000, in 1929, $853,721,000 and $1,059,149,000 in the peak year 1923.

The total property investment of Class I railroads, including their non-operating subsidiaries amounted to $26,150,000,000 at the end of 1932; as compared with $26,242,856,220 at the end of 1931; $26,354,686,261 in 1930; $25,870,122,983 in 1929; and $20,925,988,630 in 1920. These figures include the total investment in road and equipment, materials, supplies, and cash.

The net capitalization of all Class I railroads, excluding switching and terminal companies, amounts to nearly $19,000,000,000. The net capitalization is the amount of railroad stocks, bonds and other funded debt outstanding in the hands of investors, excluding railroad securities held by railroads. The net capitalization includes $11,830,431,260 of funded debt, and $7,111,028,874 of capital stock, a total of $18,941,460,134.

RAILROAD EARNINGS

Gross Operating Income. — Due to the saving improvement in earnings during the latter months of 1933, the Class I railroads showed an improvement in earnings as compared with 1932. Class I railroads are estimated to have earned gross operating revenues of approximately $3,090,000,000 in 1933, as compared with $3,126,755,125 in 1932, a decrease of a little over 1 per cent. Operating expenses in 1933 are estimated at $2,250,000,000 as compared with $2,403,714,459 in 1932, a decrease of over 6 per cent. The lower gross revenue in 1933 despite increased traffic was due to rate reductions made to meet competition.

Net Operating Income.—The same railroads are estimated to have earned net railway operating income of $465,000,000 in 1933 as compared with $326,363,789 in 1932, an increase of 16 per cent over 1932. The net railway operating income is arrived at by deducting the gross operating income from gross revenues to find the net operating revenue, and deducting taxes and uncollectable revenues from this sum to find the railway operating income. The estimates for 1933 are based upon complete reports for the first ten months of the year and estimates by the Bureau of Railway Economics of earnings for the last two months. The actual net railway operating income for the first ten months of 1933 was $398,239,000 compared with $260,616,000 for the first ten months of 1932.

Gross revenues of Class I railroads have fallen steadily each year since 1929. Between 1920 and 1929, the gross revenues ranged between five and a half and six billion. They amounted to $5,516,598,242 in 1921, the low year in this period, and $6,382,939,546 in 1926, the high year. In 1929, gross revenues were $6,279,520,544, in 1930, $5,281,196,870; in 1931, $4,188,343,244; in 1932, $3,126,755,125, and in 1933 they are estimated at $3,090,000,000.

Operating expenses have been reduced by drastic economies. Between 1920 and 1929 the operating expenses ranged between $5,827,591,146 in 1920, the highest year, and $4,414,522,334 in 1922, the lowest year in this period. Since 1929 the operating expenses have been reduced each year. In 1929, they were $4,506,056,262; in 1930, $3,390,928,687; in 1931, $3,223,574,616; in 1932, $2,403,417,459, and in 1933 they are estimated at $2,250,000,000.

Operating Ratio. — The efficiency of railroad operation is customarily measured by the percentage relationship between operating expenses and operating income. In 1933, the operating ratio was approximately 72.81 per cent, based upon the estimated revenues and expenses for the year. In 1932, the ratio was approximately 80 per cent. The operating ratio for 1933 compares favorably with the average annual operating ratio between 1921 and 1930, when it ranged between 71.96 per cent in 1929, the lowest year, and 82.80 per cent in 1921, the highest year.

Ton-Mile Earnings.—The average revenue per ton-mile of freight hauled by Class I Carriers declined from 1.051 cents in 1931 to 1.045 cents in 1932. This represents a continuation of the steady downward trend in average revenue since 1921, when the average revenue per ton-mile was 1.275 cents. Average revenue per passenger-mile decreased to 2.219 cents in 1932 from 2.513 cents in 1931 and 3.086 cents in 1921. The decreases in average receipts per ton-mile and per passenger-mile reflect decreases due to much competition and to stimulated declining traffic.

TAXES AND DIVIDENDS

The amounts paid by Class I railroads to various governmental agencies in taxes was nearly $28,000,000 less in 1932 than in 1931. Taxes consumed 8.8 per cent of the gross operating revenues of Class I carriers in 1932 compared to 7.25 per cent in 1931, and 6.6 per cent in 1930.

The same carriers paid stockholders only $92,782,295 in dividends in 1932, as compared to more than $330,150,000 in 1931; $497,024,912 in 1930; and $490,125,673 in 1929. The average cash dividend paid by Class I Carriers was 1.1 per cent in 1932, 4 per cent in 1931; 6 per cent in 1930, and 6 per cent in 1929. Severe reductions in dividend rates and the omission of dividends by a number of dividend-paying carriers in 1932 greatly reduced the amount of dividend payments and the rate of dividend for Class I carriers considered as a whole. The tax and dividend payments of Class I Carriers for the period 1921-1932 are shown in the tabulation on the following page (380).

DISTRIBUTION OF OPERATING REVENUES

The distribution of the operating revenues of the Class I railroads for the year 1932 is reported by the Committee on Public Relations of the Eastern Railroads to be as follows:

	Per Cent
1. Labor	46.0
2. Materials and supplies	25.4
3. Locomotive fuel	5.5
4. Equipment and joint facility rentals	3.9
5. Taxes	8.8
6. Net railway operating income	10.4
	100.0

The 10.4 per cent represented by the net railway operating income is the amount available for fixed charges and returns on other capital invested in the properties.

Year	Railroad Tax Payments	Percentage Ratio of Taxes to Gross Operating Revenues	Dividend Payments	Average Cash Dividend (Per Cent)
1921	$275,875,990	5.00	$298,511,328	4.1
1922	301,034,923	5.42	271,573,751	3.7
1923	331,915,459	5.28	296,127,048	4.0
1924	340,336,686	5.75	320,429,767	4.2
1925	358,516,046	5.86	342,020,885	4.5
1926	388,922,856	6.09	399,243,963	5.2
1927	376,110,250	6.13	411,581,093	5.3
1928	389,432,415	6.37	430,677,138	5.3
1929	396,682,634	6.32	490,125,673	6.0
1930	348,553,953	6.60	497,846,351	6.0
1931	303,528,099	7.25	330,150,873	4.0
1932	275,165,748	8.80	92,782,295	1.1

NET RAILWAY OPERATING INCOME AND RATE OF RETURN

The estimates of the American Railway Association place the net railway operating income of Class I railways for 1933 at about $465,000,000 as compared with $326,298,000 for 1932. The estimated return for 1933 will yield a return for Class I railroads as a whole of 1.77 per cent upon the property investment, as compared with the return of 1.25 per cent in 1932. This is some improvement but still a meager return. Trends in net railway operating income and in the rate of return upon the property investment of Class I Carriers are shown below:

Year	Net Railway Operating Income	Rate of Return (Per Cent)
1921	$ 600,937,356	2.87
1922	760,187,319	3.59
1923	961,955,457	4.33
1924	973,837,202	4.23
1925	1,121,076,341	4.74
1926	1,213,089,966	4.99
1927	1,067,985,495	4.30
1928	1,172,864,100	4.65
1929	1,251,697,938	4.84
1930	868,878,773	3.30
1931	525,627,852	2.00
1932	326,298,000	1.25
1933	465,000,000	1.77

FREIGHT TRAFFIC

Effects of Depression. — The freight traffic of railroads has been adversely affected by the depression in business and by the competition of other carriers. The loss of traffic is indicated by the sharp decline in freight traffic originated, in total freight traffic transported, and in ton-miles transported in 1932. The figures for the portion of 1933 available at this time indicate some improvement over 1932. Class I Carriers of the United States originated 646,222,818 tons of freight in 1932, as against 894,185,637 tons in 1931, a decrease of approximately 250,000,000 tons of freight traffic. The total freight tonnage transported fell from 1,605,034,171 tons in 1931 to 1,168,288,594 tons in 1932. The revenue ton-miles transported in 1932 amounted to 234,320,117,000 ton-miles compared with 309,224,879,222 ton-miles in 1931; 383,449,588,491 ton-miles in 1930, and 447,321,561,129 miles in 1929. The revenue ton-miles of freight transported by Class I Carriers for 1933, based upon actual figures for the first ten months and estimated traffic for the last two months aggregated 252,000,000,000 ton-miles as against 234,000,000,000 ton-miles in 1932.

Decline in Tonnage.—The decline in freight traffic originated in total tonnage transported, and in ton-miles transported has discounted ten years of railroad development, as shown in the tabulation on the following page (381).

Classification.—The tonnage originated in 1932 was divided among the following classes of tonnage:

Commodity Group	Approximate Percentage of Total Traffic Originated
Products of mines	56.1
Manufactures and Miscellaneous	22.2
Products of Agriculture	12.5
Products of forests	6.0
Animals and products	2.8
All less than carload traffic	2.4
Total	100.0

Year	Railroad Tonnage Originated	Tonnage Transported	Ton-Mile Transported
1921	940,000,000	1,690,000,000	306,804,000,000
1922	1,023,000,000	1,840,000,000	339,285,000,000
1923	1,279,000,000	2,333,000,000	412,727,000,000
1924	1,187,000,000	2,171,000,000	388,415,000,000
1925	1,247,000,000	2,304,000,000	413,814,000,000
1926	1,336,000,000	2,465,000,000	443,746,000,000
1927	1,281,000,000	2,363,000,000	428,736,000,000
1928	1,285,000,000	2,361,000,000	432,915,000,000
1929	1,339,000,000	2,451,000,000	447,321,000,000
1930	1 153,000,000	2,063,000,000	383,787,000,000
1931	894,000,000	1,605,000,000	309,224,000,000
1932	646,000,000	1,168,000,000	234,320,000,000

PASSENGER TRAFFIC

Decline in Passengers.—The passenger business of the railroads of the United States has declined each year since 1920. In 1932 the Class I railroads transported 478,738,000 revenue passengers, a decrease of more than 118,000,000 as compared with 1931 when 596,390,924 fare-paying passengers were transported. The number of passenger-miles transported declined from 21,894,420,536 in 1931 to 16,974,591,000 in 1932. In 1920 the Class I carriers carried 1,234,862,048 passengers, and performed over 46,000,000,000 passenger-miles of service. This represents a loss of about 64 per cent in passenger-miles.

Decline in Revenue.—The average revenue per passenger-mile continued to decrease from 2.513 cents in 1931 to 2.219 cents in 1932, and the figures available for 1933 indicate a further decrease in average rates per passenger-mile as a result of numerous passenger rate reductions.

Classification. — The decline in railroad passenger traffic, railroad passenger-miles, and in average receipts per passenger-mile are shown below:

Year	Passengers Transported	Passenger Miles Transported	Average Revenue Per Passenger Mile (Cents)
1921..	1,035,000,000	37,312,000,000	3.086
1922..	967,000,000	35,469,000,000	3.027
1923..	986,000,000	37,956,000,000	3.018
1924..	932,000,000	36,090,000,000	2.978
1925..	888,000,000	35,950,000,000	2.938
1926..	862,000,000	35,477,000,000	2.936
1927..	829,000,000	33,649,000,000	2.896
1928..	790,000,000	31,601,000,000	2.850
1929..	780,000,000	31,074,000,000	2.808
1930..	703,000,000	26,814,000,000	2.717
1931..	596,000,000	21,984,000,000	2.513
1932..	478,000,000	16,974,000,000	2.219

CONTROL OF PRODUCTION

By William F. Notz

Dean, School of Foreign Service, Georgetown University

EMERGENCY LEGISLATION

During 1933 controlled production in agriculture, mining and certain manufacturing industries was legalized by the Federal Congress and administered by the Federal Government on a nationwide scale. This intervention by government in the economic life of the country on a hitherto unprecedented scale was effected by means of special emergency legislation—the Agricultural Adjustment Act of May 12, 1933 and the National Industrial Recovery Act of June 16, 1933. In the former it was declared as the policy of Congress "to establish and maintain a balance between the production and consumption of agricultural commodities," and the Secretary of Agriculture was empowered to provide for reduction in acreage or reduction in the production for market, or both, of any basic agricultural commodity, *viz.*, wheat, cotton, field corn, hogs, rice, tobacco, milk and its products, $100,000,000 being appropriated for this purpose.

WHEAT

In the Government's wheat reduction campaign the 1933 wheat crop figures only as a basis for the 1934 crop reduction, the 1934 campaign being open to those planting in 1933, and 1933 also figuring in a three-, four- and five-year basic average. Each farmer willing to coöperate in the plan to adjust the wheat acreage registered his average acreage and production for the past three to five years. About half of that average production (the part on which a processing tax is collected) will be his farm allotment on which the government pays him adjustment. The allotment claimed by the farmer is published in the local newspaper for control purposes. On receipt of his application, he becomes a member of the county wheat production control association. He contracts to cut his 1934-5 acreage by an amount designated by the U. S. Secretary of Agriculture, but the reduction in no case may exceed 20 per cent of his average sown acreage of the 3-5 previous years. The government will pay him 20 cents a bushel in cash in the fall of 1933 and between 8 and 10 cents in the spring of 1934. These payments will be in addition to what the farmer can get in the open market for his wheat. The farmer must plant some non-competing crop on the land he takes out of wheat. By the middle of November, 1933, about 51,925,000 acres of wheat acreage were signed up, representing 80 per cent of the national wheat acreage. Acreage reduction in 1934 on the basis of 15 per cent of the acreage signed up will total 7,788,000 acres. Payments of the wheat bonus are expected to reach $102,000,000.

COTTON

Under the Agricultural Adjustment Act the cotton acreage of the United States was reduced by a total of 10,304,000 acres. The planters in the Cotton Belt had planted some 40,000,000 acres in the staple, which would have yielded an estimated total crop of 16,561,000 bales if the cotton reduction plan had not been put in effect. By plowing under, this year's crop was held down to about 13,000,000 bales up to November with ginning still in progress. Under the cotton reduction plan the cotton planter was given the choice of a straight cash benefit or the combination of cash payments and options on cotton at 6 cents a pound. Up to Dec. 11, $109,686,526 was set aside for such cash payments, of which nearly $90,000,000 was distributed. These payments, known as acreage rentals, *i.e.* the Government "rented" the acreage from the planters and kept it free of cotton, were made to 1,012,290 farmers. Approximately 1,142,113 contracts were signed by cotton planters during the campaign. The Government distributed options to approximately 660,000 producers for about 2,400,000 bales of cotton at 6 cents per pound, providing that up to Dec. 1, 1934 the producer may call the options at any time when the price of cotton on the basis of New York 7-8 middling is not below 9½ cents. After that date the producers may call the options at will regardless of the price. The options expire May 1, 1934 unless renewed by the producer. In the event of renewal, the producer will be required to pay 45 cents per bale per month as carrying charge. Renewals are limited to one year.

CORN-HOG CURTAILMENT

The limitation of corn and hogs formed a joint program. In order to adjust the production and consumption of hog products and marketing conditions, special premiums were offered farmers for a maximum of 4,000,000 healthy, normal pigs between 25 and 100 pounds in weight and a maximum of 1,000,000 sows in farrowing stage, each not less than 275 pounds in weight. The hog reduction campaign ended Sept. 29. To that date 6,000,000 pigs and 200,-

000 sows were sent to market, the farmer securing $31,000,000 for them. The meat was consigned to the National Emergency Relief Administration and distributed to the needy. The plan was financed by a processing tax on hogs for domestic consumption amounting to about half a cent a pound. Supplementing the limitation of hogs, a program of reduction for 1934 was set in motion, whereby the corn crop is to be cut by 25 per cent of the preceding 3-year base period. Farmers agreeing to the corn reduction are to receive benefit payments from the Federal Government at the rate of 30 cents per bushel of the average production of corn during the 3-year base period on each acre removed from corn production. By arrangement with his local production control association, a farmer may contract to take out of corn production more than the minimum of 20 per cent of his average acreage for the past three years, but in no case less than the required 20 per cent. A maximum of approximately $180,000,000 will be available for distribution as initial adjustment payments to farmers participating in the hog and corn program. Committees were appointed in December by the Secretary of Agriculture to supervise the activities of county corn-hog production control for Iowa, Nebraska, Minnesota, Missouri, South Dakota, Indiana, Illinois, Kansas and Ohio. According to a statement by Secretary Wallace in December, the corn-hog reduction was necessary ''because surpluses in the corn belt had been piling up for a good many years, not only from loss of our export markets, but also considerably because of the decline in use of horses and mules, as trucks and tractors replaced them. The export market suffered a sharp decline due to foreign import restrictions on American lard and quota systems affecting meat shipments from the United States.''

TOBACCO

In the tobacco reduction program under the Agricultural Adjustment Act, approximately 95 per cent of the growers of flue-cured tobacco signed agreements to reduce their tobacco production for the next two years, giving assurance that the flue-cured tobacco crop will be effectively controlled. The campaign for preliminary agreements among the growers ended Sept. 20. The growers agreed to reduce their production not to exceed 30 per cent of the average production for 1931, 1932 and 1933. Up to Oct. 10, checks totaling nearly $230,000 were sent out by the Government to about 2,100 cigar-tobacco growers as benefit payments on the reduction agreements. The states participating in the flue-cured campaign were North Carolina, South Carolina, Georgia, Virginia and Florida. Processing taxes are to be imposed to take care of all campaigns. It is hoped that the 1934 crop will be reduced to 500,000,000 pounds. Only the cigar type of tobacco was affected by the reduction campaign, so far as 1933 was concerned, that product not having been harvested when the 1934 campaign was undertaken. Otherwise, the 1933 crop likewise was used only as a basis for the 1934 reduction. Growers of Burley tobacco in Kentucky, Virginia and Tennessee in November endorsed an Administration program to reduce production by one-third in 1934.

PETROLEUM

After years of unsuccessful efforts to control the production of petroleum through some agency of the Federal Government, the National Industrial Recovery Act provided the machinery to balance production and consumption of crude oil and petroleum products. The petroleum code agreed upon under the Act mentioned requires that the required petroleum production shall be estimated at intervals by a Federal agency designated by the President, and shall be equitably allocated among the several states. Such estimate shall be deemed to be the net reasonable market demand, and shall be recommended as the operating schedule for the producing states and for the industry. The subdivision into pool, lease and well quotas of the production allocated to each state is to be made within the respective state. In case of non-compliance, the President may regulate the shipment of petroleum or its products in or affecting interstate commerce out of such state to the extent necessary to effectuate the purpose of the National Industrial Recovery Act. Secretary of the Interior Ickes, the administrator of the petroleum code, has divided the United States into eight refining districts, and decreed the gasoline stocks which may be held in each district. Up to Sept. 2, when the petroleum code went into effect, the average daily petroleum output ranged from 2,800,000 to 3,000,000 barrels per day. This had been reduced under the petroleum administrator to from 2,200,000 to 2,300,000 barrels daily up to the middle of December.

RESTRICTION PROVISIONS IN INDUSTRIAL CODES

About fifty of the industrial codes approved by the President under the National Industrial Recovery Act, up to the close of the year, contain provisions dealing with curtailment of production. Among the practices regarded as unfair in one or more codes, concerning which freedom of action has been limited, are: employment of double labor shifts, plant enlargement, installing additional machinery, home work (in the garment industry) and hours of work. Under the Cotton Textile Code, for instance, no new installations of equipment will be permitted, except for replacement of existing units or to bring the operation of existing production machinery into balance, unless approved by the National Recovery Administration. In this way, it is hoped, to bar, for the time being, further expansion of the cotton textile industry, either through enlargement or through construction of new plants. Similarly, the code for the furniture manufacturing industry prohibits construction of any new factories or extension of any existing plant, unless specifically permitted by the Recovery Administration. To curb overproduction, this industry also agreed that no factory be allowed to operate more than one shift in each 24 hours, except to balance production where one division of a plant might be running ahead of other operations.

INTERNATIONAL WHEAT AGREEMENT

At the London Economic Conference, June 12 to July 27, plans were submitted for the international limitation of the production of wheat, tin, rubber, sugar, silver, copper, tea and cocoa. A definite reduction plan was agreed upon only in the case of wheat. The necessity for concerted action to reduce the world production of wheat has been apparent since 1929, and negotiations were initiated in 1930, which finally culminated in the International Wheat Agreement of London, Aug. 25, 1933. It is the first definite plan covering the production and distribution of an agricultural commodity to receive the approval of exporting and importing countries representing substantially all the world trade in the commodity. It is a notable attempt to achieve planned economy in a world staple commodity. Twenty-two nations, including the most important markets of Europe, as well as the principal exporting countries—the United States, Canada, Australia, Russia and the exporters of the Danubian Basin—are signatories to the fact. Russia signed it with reservations. The agreement fixes 560,000,000 bushels as the base figure for the international crop movement during the present crop year. Of this total, 47,000,000 bushels are allotted to the United States, 200,000,000 to Canada, 110,000,000 to Argentina, 105,000,000 to Australia, and 50,000,000 to 54,000,000 to the Danubian Basin. The balance must cover the export quotas of Russia. The exporting countries are further agreed to limit their exports for the second year (1934-5) to an amount 15 per cent less, in each country, than the average production of the average acreage sown between 1931 and 1933 after normal domestic requirements have been deducted. The importing countries which signed the pact agreed: (1) not to encourage further increase in their wheat acreages; (2) to attempt to secure increased consumption of wheat and to remove gradually the measures tending to lower the quality of bread; (3) to begin reducing wheat tariffs when the international price of wheat reaches and maintains for a period of four months a price fixed at 63 gold cents per bushel, agreeing that "although the rate of duty necessary to assure remunerative prices may vary for different countries, it will not be sufficiently high to encourage their farmers to expand wheat acreage"; (4) to accept in principle the desirability of reducing import restrictions and agree that they are prepared to make effective reductions in 1934-5 provided that world prices have taken a definite turn from the average price of the first six months of the calendar year 1933. The countries participating in the agreement have established a joint committee to watch the working out of the various provisions agreed upon at the London conference.

FOREIGN TARIFFS AND TRADE CONTROLS

By Henry Chalmers

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GENERAL CHARACTERIZATION

The year 1933 saw go unfulfilled the hopes widely held at its outset for a general agreement among the nations, through the London Economic Conference, for reductions of tariffs and other trade barriers. After a pause for a brief truce, most of the governments feeling need for any additional measures of foreign trade control fell back upon the further restriction of imports by the various methods developed or revived during past years, or upon the diversion of their reduced foreign purchases to selected countries on a compensatory basis, in accordance with the volume of sales to those countries. As a result, the level and complexity of barriers at the close of the year were, in most cases, more obstructive to the flow of trade between the nations generally than they were at its opening. The upturn in the volume of world trade during the latter months of 1933, after the continued progressive decline in the earlier part of the year, can hardly be attributed to a general easing of trade barriers and has apparently taken place in spite of them.

CONTINENTAL EUROPE

Particularly in the countries of Europe, the resort to import quotas and exchange restrictions became so widespread during 1933 as to be almost regarded as regular measures of foreign trade control. Starting as a temporary defensive measure, primarily to hold imports to a volume that could readily be absorbed during a depression period and usually allocated according to the share normally contributed by the various supplying countries, the use of quotas appears to have been turned during 1933 into an aggressive measure of restriction, and a bargaining device to promote exports, by withdrawing or granting quotas in accordance with the balance of trade or the offer of guaranteed or permitted purchases on the part of the particular other country. The unfavorable reactions to this program from some directions is indicated by the fact that certain European countries gave broad authority to their governments during the year to take defensive steps against countries maintaining stringent quotas and similar restrictions against their goods, although often by the homeopathic method of authorizing the resort to like measures in retaliation.

The diffident attempts during earlier years at special arrangements between various European countries, that barely skirted the most-favored-nation obligation to other countries, were followed in 1933 by bolder arrangements frankly aimed at improving or balancing trade relations between particular pairs of countries by means that often operated to the injury of third countries, through the relative curtailment or diversion of trade from those other usual supplying sources.

In observing the succession and variety of trade-control measures taken by most of the countries of Continental Europe in 1933, it is difficult to escape the impression of confusion, experimentation and instability. Most of the devices and arrangements resorted to appear distinctly to be expedients adopted primarily with a view to their immediate or short-run effects upon the trade or financial position of the particular country and largely disregarding traditional methods and long-run principles, in the endeavor to meet temporary and shifting situations of an emergency character. The characteristic short term of most agreements, and the efforts of certain countries to secure release from older treaty obligations, reflect the sense of instability and the desire of governments for freedom of action as situations change.

While control upon the allocation of foreign exchange is common also in Latin America, quotas are now only slightly in use outside of Continental Europe, and in a special way in England, suggesting that the nervous tension from the current disturbance to international trade is being most keenly felt by the countries of Europe. Yet the continued agitation in Europe for multilateral conventions calling for simultaneous reductions of trade barriers on the part of the contracting governments, or for regional tariff agreements designed to bring about a freer flow of trade between neighboring groups of countries, brought little concrete progress during the year, beyond a few isolated preferences here and there to certain products of particular Eastern European countries.

It is too early to judge whether these exceptional devices and arrangements are likely to taper off rapidly with the passing of the present emergency conditions, or whether in some measure they are bound to be built into the permanent and continuing trade-control structure of the nations. While import duties have in many countries been superseded by other measures as the dominant methods of foreign trade control, it seems significant that, despite the considerable dissatisfaction voiced over the limitations imposed by the most-favored-nation obligation, that principle has only seldom been violated during the depression in the adjustment of tariff duties between countries not politically related.

The obvious difficulties of regulating international trade by quotas, exchange controls and trade balancing arrangements, without almost inevitably involving claims of discrimination and injury to third countries, raise serious question—apart from the sheer difficulties in their administration—as to whether those can be expected to constitute the permanent and general methods of regulating world commerce. Even the international wheat agreement, the sole arrangement of the year that was distinguished by the fact that it embraced the principal wheat exporting and importing countries and that it was designed to bring about an ultimate balance of world wheat supply with demand, is reported to be meeting with difficulties because of its dependence upon quantitative limitation and allocation of exports.

BRITISH EMPIRE

Among the areas comprising the British Empire, further and consistent progress was made toward giving effect to the trade agreements resulting from the Imperial Economic Conference held at Ottawa in the summer of 1932, through the introduction of new or greater tariff preferences to the products of each other over those of non-British areas, thus carrying forward the work of the preceding year toward closer commercial integration of the Empire. On Jan. 1, 1933, there was brought into operation in British India for the first time a general system of tariffs preferential to the products of the Empire. Ceylon and Newfoundland similarly fell in line during the year. The program for extending or enlarging the orbit of the British preferential system to include the many dispersed colonial areas was apparently carried forward with great thoroughness, and seemed almost completed by the end of 1933.

In the great majority of cases, with the notable exceptions of Australia and Newfoundland, the new or increased preference granted to Empire products in the various far-flung British areas during the year was accomplished mainly by increasing the general duties which apply to the products of non-British areas or even establishing new general duties. As one area after another proceeded to give effect to the obligations or principles of the Ottawa Agreements of 1932, the opportunities for purchases from "foreign countries" generally were progressively curtailed, and not always fully offset by replacements from competitive suppliers from within the Empire.

The consolidation of the British Empire into a closer commercial entity was advanced during the year also in other ways: by the increase on the part of the United Kingdom and many lesser areas in the percentage of Empire labor or material necessary to entitle goods to tariff preference, and by initial steps on the part of Canada, Australia, and New Zealand to re-examine their existing protective duties with a view to affording United Kingdom products the promised "opportunity of reasonable competition" with domestic articles. On the other hand, the tendency in the trade relations between the United Kingdom and the Irish Free State continued to be toward the withholding of tariff preferences or even the definite penalizing of one another's products as a result of the controversy over the land annuities.

The substantial introduction of import quotas by the United Kingdom was a significant development of the year. Starting as a means of quantitative limitation of imports of certain agricultural products, primarily in the interest of domestic producers and their price level, quotas came to be employed as a means of allocating imports as between Empire and non-Empire supplying countries sometimes favoring importations from Empire areas by the sheer fact of applying certain limitations only to outside countries.

Quotas figured prominently in the series of trade agreements, to the negotiation of which the United Kingdom turned vigorously during the year, with a number of countries largely dependent upon the English market, namely, Argentina, the Scandinavian and the Baltic countries. Not only was quantitative allocation resorted to as a means of assurance to the various countries regarding the share of the British import market for particular staple farm products which they could count on supplying during the period ahead, but also as the form of the requirement that Britain often made of the other country, as guarantee that definite quantities or proportions of the particular country's imports of certain commodities, notably coal, would be derived from the United Kingdom. The wide resort of the United Kingdom to arrangements with other countries involving reciprocal concessions or assurances with regard to duties, and undertakings with regard to quotas, exchange allocations, purchasing agreements and other devices hitherto seldom found in British commercial policy, constituted one of the striking innovations of the past year. In fact, a number of other countries had to adopt quantitative limitations on their incoming trade because of the assurances that England had required, or export controls on certain products in order to accommodate themselves to the British import quotas, the latter extending even to two of the Dominions.

On the export control side, the year witnessed several notable developments in the British areas. The international wheat agreement, which involved Canada and Australia, has already been mentioned. British India, in conjunction with Ceylon and the Netherland East Indies, put into effect the tea export restriction system for five years. The governments of British Malaya and Nigeria, in conjunction with other major producers, decided upon the substantial renewal of the existing international tin restriction scheme for three years from Jan. 1, 1934. The end of the year saw elaborate plans revived for restricting the exports of crude rubber from British Malaya, operating in conjunction with the Netherland East Indies and French Indo-China.

LATIN AMERICA

In the countries of Latin America, the availability of foreign exchange appeared as a more dominant controller of import trade during the year, particularly in South America, than did tariffs or other more direct trade-determining factors. Even where the centralized control of foreign exchange, which has been the rule in almost all of South America and parts of middle America for the last few years, has not been particularly severe in limiting the amounts of exchange granted for new foreign purchases, or in those countries where no control is maintained, import trade has often been limited by the sheer inadequacy of the volume of foreign exchange currently available, owing to the poor markets and continued low prices for their export staples, to afford the means for meeting new as well as old obligations.

Perhaps the most significant long-term development of the year in the countries of South America was the quickened movement for reciprocal trade negotiations among themselves and with certain outside countries. In agreements with certain of their neighbors, the major countries of the Continent carried far the principle of facilitating the purchase of each other's products within the limited scope that they can furnish markets for each other. The agreements usually took the form of exchanges of substantial import duty concessions on groups of each other's distinctive products; as between Argentina and Brazil, and between Brazil and Uruguay, there was established a considerable measure of free trade in certain products.

Argentina and the United Kingdom worked out between them an agreement that was a striking innovation; it involved the reduction of many Argentine duties to the 1930 level and preferential exchange treatment of British creditors, in return for the funding of outstanding obligations to England and assurances regarding Argentina's share of the British market for certain products and unrestricted access in others. The invitation from the United States to a number of the countries of Latin America (Colombia, Brazil, Argentina, Cuba and Mexico) to enter into exploratory discussions, to see if a basis could be developed for reciprocal tariff agreements, marked another new trail in commercial policy on the American Continent. The first result was an agreement concluded between the United States and Colombia in December, now awaiting ratification, designed to improve and stabilize trading relations between the two countries.

GOVERNMENTAL REGULATION OF COMMODITY EXCHANGES

By Arthur Richmond Marsh

Member, New York Cotton Exchange

GENERAL

There have been few years in which governmental attention has been more continuously directed to the principal commodity exchanges in this country, *i. e.*, the grain and provisions exchanges, the cotton exchanges, the produce exchanges, etc., than in 1933; yet in few recent years have actual or proposed measures for the positive governmental regulation of these exchanges been less in evidence. The severe depression of the prices of agricultural products dealt in upon the exchanges and the resultant desperate impoverishment of a large part of the country's agricultural population, necessitating the adoption by the National Government of a farm relief program of unheard-of proportions, have naturally subjected the operations of the exchanges to the sharpest governmental scrutiny and have at times given rise to official pronouncements of a sweepingly denunciatory character with respect to the alleged maleficent activities of speculative traders availing themselves of the facilities of these markets. Such criticisms have, of course been most numerous upon occasions when wide and disconcerting price fluctuations occurred in the markets for such commodities as wheat and cotton, these fluctuations being interpreted in some official quarters as solely attributable to excesses of speculation, although there would seem to have been ground enough in the extraordinary uncertainties of the business world with regard to the Government's own policies about money, credit, farm relief and other similar fundamental matters, for wide departures of the prices of essential commodities from all customary norms. This more rational explanation of the seemingly extravagant upward and downward movements of prices on the major commodity exchanges during the past year has in fact gradually prevailed with the officers of Government of most authority and the frequently threatened imposition of rigid governmental control over the affairs of these institutions has not been carried into effect. The same may be said of various projects for the drastic regulation or even destruction of the exchanges which have found advocates both in Congress and in some other legislative bodies. As time has gone on less has been heard of these projects and none of them has even approached legislative enactment into law.

CHANGE IN GOVERNMENT ATTITUDE TOWARD REGULATION

The truth would appear to be that the officers of Government and administrative bodies entrusted with the development and application of President Roosevelt's program for the relief of the producers of agricultural products in this country have found upon investigation of the entire situation that commodity exchanges or futures markets under present-day commercial conditions play so indispensable a part not only in the primary distribution of the great crops, but also in the operation of the industries for which these crops provide the raw materials, that governmental action, calculated seriously to impede, impair or, what is worse, destroy the normal functioning of these institutions, would necessarily produce far-reaching confusion and disturbance, with attendant ruinous losses, throughout the entire system of marketing, processing and distributing to ultimate consumers the commodities that the farmers produce. It is conceivable, of course, that a new system might be devised to replace that which has come into being through generations of effort, but the destruction of the old and the inauguration of the new could scarcely fail to be accompanied by acute distress in many directions, and it is obviously incompatible with immediate economic recovery. Without the protection of "hedging" through the purchase or sale of future contracts, which is now universal in the trades and industries concerned with farm products and which is practicable upon a nationwide scale only through the use of organized exchanges or futures markets, merchants dealing in these products, manufacturers engaged in processing them, bankers loaning money or credit upon them, buyers and sellers of bills of exchange against them, insurance companies providing coverage for them and a wide range of other persons concerned with them would at once be subjected to such financial risks by reason of unforeseeable price changes that the existing system of dealing in these commodities would have to be abandoned and new methods arrived at through the long and costly process of trial and error. Realization of all this has very evidently affected the thinking of governmental leaders of late and has deterred them from adopting regulative policies designed to deprive the exchanges of general freedom of initiative or to prevent them from functioning in the manner now long customary. As a consequence of this distinct change in the attitude of governmental authorities the urge for rigid exterior regulation of the exchanges appears to have diminished greatly and a new orientation of governmental policy with respect to them is becoming apparent.

NEW DOCTRINE EMBODIED IN NRA CODE

The new doctrine seems to be that the commodity exchanges, as organized national markets in which all the different classes of dealers in the respective commodities may be directly or indirectly engaged in the transactions of buying and selling required by their business operations, are essential to the orderly distribution of the basic commodities and to the establishing of prices for these commodities which are just and reasonable as between producers and consumers, but that certain speculative abuses have been allowed to creep into the dealings on the exchanges—abuses which have produced unreasonable and harmful price disturbances and distortions, the prevention of which is imperatively called for in the public interest—and that the exchanges must therefore be so cleansed of these abuses that the economic service they render will be dependably in accord with the welfare of society as a whole. For the purpose of correcting the evils that have grown up in the exchanges, while conserving what is economically and socially valuable in these institutions, the present National Administration has shown a disposition to rely, not upon restrictive statutory regulation, but upon the creation and acceptance by the members of the exchanges themselves of a business code similar to those which all other trades and industries in the country have been compelled to subject themselves to under the auspices of the National Industrial Recovery Administration. In this as in other directions the principle which President Roosevelt and his advisers are, according to their numerous pronouncements, seeking to apply is that of close coöperation between the members of each business group and the Government in the formulation of rules of business practice which, while leaving the actual conduct of their affairs in the hands of business men, shall safeguard society as a whole, and especially the great producing and consuming classes, against price and other distortions brought about by the efforts of strong and aggressive individuals to obtain uneconomic pecuniary advantages for themselves from the speculative manipulation of the markets. To this end the officers of the Government have called upon the responsible members of the exchanges and the leaders in the trades affected by the exchanges to prepare codes the enforcement of which will presumably prevent altogether, or at least minimize, the speculative abuses which are believed to have been chiefly responsible for the worst commodity price disturbances of recent years. Such codes, when approved by the Government, will have the force of law as regards dealings on the exchanges, but the enforcement of them, although under general Government supervision, will be left to the authorities of the exchanges themselves. In this wise, continuous harassing interference by minor Government officials with the course of business on the exchanges, the danger of which has caused much apprehension among dealers in the commodities affected, will be avoided and only speculative operations of an unreasonable and abusive character will be prevented.

FORMULATING THE CODE FOR GRAIN EXCHANGES

In the formulation of codes for the several commodity exchanges in the country the greatest progress has been made with the code for the grain exchanges, of which the Chicago Board of Trade is much the most important. In as much as wheat, oats, corn and rye are of vital consequence to the largest group of all among the country's agricultural producers, and in as much as price fluctuations for these grains have been particularly violent and incalculable during the depression period, it has been felt in governmental circles that the safeguarding of the grain markets from speculative excesses and the price disturbances resulting therefrom should take precedence over all other regulative proceedings in this field. It is understood at this writing that the leading members of the grain trade have nearly, if not quite, completed a code for the grain exchanges which meets with the approval of the governmental authorities, and that this code will become operative in the near future. It is to be presumed that similar codes will in due course be formulated by the cotton exchanges and the organized exchanges which serve as markets for commodities like sugar, coffee, silk, wool tops, hides, silver, the minor metals, etc., not to speak of the less formally organized exchanges or markets for commodities like butter, eggs, provisions, fruits, etc. In other words, this method of exchange control in the public interest, which is much more in consonance with the legal and commercial traditions of the United States than rigid statutory and administrative regulation would be, is at least to be given a fair trial.

PUBLIC PROTECTION OF INVESTORS

By John Edward Dalton

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GENERAL

During 1933, activity in the field of security regulation centered about strengthening the power of the Federal Government in its control over traffic in securities. The enactment of the Federal Securities Act (H.R.5480) was the focal point in this development and overshadows in importance the passage of the Glass-Steagall Bill and the prolonged investigation of the financial exchanges by the Senate Committee on Banking and Currency, both of which however, are of significance and must be noted.

THE ACTION OF THE STATES

Control in Corporation Laws. — This increase in the Federal powers has not decreased those of the States, however. In the final analysis, the States remain the primary agencies through which the modern complexities of the issuance of securities to the investing public are affected by legislative and administrative control. This control appears principally in the corporation laws under the authority of which securities are issued. The United States has seen this year the development of a centralized control of the traffic in interstate securities without a similar control of the issuing corporation. This condition of Federal control without Federal incorporation has no exact parallel in other capitalistic countries.

State Jurisdiction. — Furthermore, the various States, since 1911, have passed and have continuously revised a series of so-called Blue Sky laws affecting the issuance and traffic of securities. This control, because of constitutional limitations, has been limited to the sale of securities to citizens within the State, but inasmuch as a substantial percentage of such securities purchased flow in interstate commerce, these laws have materially affected interstate financial transactions. The authors of the Federal Securities Act were faced with this fact and recognized it in Section 18 thereof by providing that "nothing in this title shall affect the jurisdiction of the securities commission (or any agency or office performing like functions) of any State or Territory of the United States or the District of Columbia, over any security or any person."

Maintenance of Powers. — There was no evidence during the year that the various States were to relinquish any of their powers in this regard; on the contrary, through revision of their Blue Sky laws they tightened their hold over the sale and purchase of securities, both those originating intrastate and those purchased interstate. This tendency to strengthen the laws was seen in Wisconsin and Idaho, States having a typical "permit-license" type of Blue Sky law, as well as New York, which has elected to control securities through the "fraud type". The Federal Trade Commission in the future may administer the provisions of the Federal Act in a manner which will meet the requirements of the most exacting States and hence allow the States to concentrate their labors upon strictly intrastate securities, but, to date, there has been an absence of any such development. The near future, therefore, probably will find a concurrent State and Federal administration of protective legislation, a condition which may raise serious problems of administrative duplicity and a confusion of responsibilities.

THE FEDERAL SECURITIES ACT

President Roosevelt's Recommendation.—Following the declarations of intent made prior to the National election in November, 1932 (speech at Columbus, Ohio, and on floor of Democratic National Convention, Chicago), President Roosevelt transmitted on March 29 "a recommendation to Congress for Federal supervision of traffic in investment securities in interstate commerce." The President stated that "in spite of many State statutes the public in the past has sustained severe losses through the practices neither ethical nor honest on the part of many persons and corporations selling securities." No reference was made in the Presidential recommendation to a specific bill, although the broad purpose of the legislation should be "to protect the public with the least possible interference to honest business." However, the message stated "the Federal Government cannot and should not take any action which might be construed as approving or guaranteeing that newly issued securities are sound in the sense that their value will be maintained or that the properties which they represent will earn profits." There was, however, "an obligation to insist that every issue of new securities to be sold in interstate commerce shall be accompanied by full publicity and information, and that no essentially important element attending the issue shall be concealed from the buying public". Without using definite terminology, the President's recommendation called for a "registration and publicity" type of control following the British Companies Acts, rather than the "fraud" type of New York or the "permit" type as found in 36 of the 48 states. In this respect the President advocated a type of legislative control which deviated substantially from the trend of Blue Sky legislation developed by the States over a twenty-year period.

Legislative Development. — In view of the fact that there had been a continuous advocation and debate in Congress since 1921 of some type of Federal control of security issues, the passage of the Federal Securities Act of 1933 in a period of less than sixty days was accomplished with unusual speed. The hearings on its first draft, the Robinson Bill, before the respective House and Senate Committees were brief and mainly recorded the convictions of witnesses as to the merit of the objectives of the Bill, rather than the exploration of the evidence as to the probable results of the operation of its far-reaching provisions. The criticism which arose was centered upon the fact that the Bill was hastily written and was being rushed through Congress without adequate consideration. Many supporters of the measure agreed with the critics that the Bill could not be classified as emergency legislation and in consequence urged that more analysis and study should be given it before final approval.

It was agreed at all times during the debates, that the central idea of the measure was sound; *i. e.*, that the issuer should be compelled to register pertinent information concerning the security with the Federal Trade Commission precedent to its legal interstate sale by the issuer. Sharp differences of opinion developed as to the merits of its individual provisions. This resulted in the elimination of the following significant provisions found in the original draft; (1) that it should be a Federal offense to offer securities which do not meet the requirements of the State in which they are to be sold, (2) that the provisions of the Act should be retroactive, (3) that revocation of the registration might be made by the Commission if "the business enterprise of the issuer of the security is not based upon sound principles." It was argued that the inclusion of the first two of these provisions would increase substantially the administrative task of the Commission and that the last would place in the hands of that administrative agency a discretionary power over finance and business which was unnecessary and dangerous.

The Content of the Act.—The Act finally sent to the President for signature (H.R.5480) went beyond the Presidential mandate that the securities "shall be accompanied by full publicity and information, and that no essentially important element attending the issue shall be concealed from the public". These requirements were met by Sections 5 and 10 of the Act, which require a registration of information with the Federal Trade Commission before sale and the presentation of such information, with certain limitations, in the prospectus employed in such sale. In addition to this central requirement, however, the following provisions were added:

(1) Section 7. The Commission may by rules and regulations require from issuers "such other information" in the registration statement as may be "necessary or appropriate in the public interest or for the protection of investors."

(2) Section 8. The Commission may issue a stop-order setting aside the effectiveness of a registration "if the registration statement includes any untrue statement of a material fact or omits to state any material fact required to be stated therein necessary to make the statements therein not misleading".

(3) Section 10. The Commission may require in a prospectus other information "necessary or appropriate in the public interest or for the protection of investors."

(4) Section 17. This provision states that it shall be unlawful for any person in the sale of any securities in interstate commerce "to employ any device, scheme or artifice to defraud".

(5) Section 20. The Commission is given the power of injunctive relief against any person who "is engaged or about to engage in any act or practice which constitutes or will constitute a violation of the provisions of this Title ————."

The practical effect of the first three of the above provisions is to give the Commission the power to disapprove of the registration of securities on the grounds that the information is not adequate in the circumstances. An elementary knowledge of modern finance discloses the large discretionary powers surrounding these provisions. The provisions of Section 17, the fraud section in light of Section 20, injunctive relief, make the Act a Federal fraud measure, and its administration may be as comprehensive as the Commission's interpretation of the phrase, "any device, scheme, or artifice to defraud". These five provisions appear to be capable of extensive and varying interpretations which might make the Act as strict as those Blue Sky laws in the most exacting states.

Civil Liabilities.—By the provisions of Section 11, relating to the civil liabilities on account of false registration statements, every purchaser of a security, unless the purchaser had knowledge of such untruth or omission, to which such registration statement relates, is given the right to bring an action against the issuer and all directors of the issue, its officers signing the registration statement and its experts and the underwriters sponsoring the same. This provision went beyond the existing civil liabilities created by law in this regard and became the center of criticism at the time the Act was signed. This criticism became more vocal after that date and it was held that the extension of the civil liabilities had led to an ultra-cautious attitude of investment bankers and had caused a partial paralysis of the new and refunding issues market.[1] The meaning of this controversial section 11 was explained by the Federal Trade Commission[2] but its interpretation was at variance with that of the opponents of this provision and did not silence their criticism. On Dec. 3 *The New York Times* reported that Senator Fletcher had received the support of President Roosevelt for the modification of this provision of the Act.

CONTROL OF STOCK EXCHANGES

Before the advent of the Democratic Administration, March, 1933, the Senate had initiated, through its Banking and Currency Committee, a general investigation of the effect of speculation upon interstate commerce. The scope of the investigation was broadened to include a general study of current financial practices. President Roosevelt on March 14 announced himself in favor of a continuation of the investigation, and in his recommendations to Congress, March 29, referring to the Federal supervision of traffic in investment securities in interstate commerce, he stated that ''it (the Securities Act) should be followed by legislation relating to the better supervision of the purchase and sale of all property dealt in on exchanges.'' In 1933 a rushed Congress, in Special Session, did not act in this regard, but in light of th recommendation of the President an the disclosures of the Senate Committee, some positive legislative actio in the future may be expected.

GLASS-STEAGALL BILL

The third point in the President recommendation of March 29 was fo the enactment of ''legislation to correct unethical and unsafe practices o the part of officers and directors o banks and other corporations''. Th reference was made to the practice built up after 1920 and reaching it peak in 1929, by which banks typically acting as depositories of monie and as fiduciary agents, became distributors of securities. In doing thi the interest of the investing publi was compromised by the dual role o the banker. The Glass-Steagall Bill signed June 16, required, among othe things, that all member banks dives themselves of security affiliates withi one year. In doing this, Federal legislation prohibited a financial practice which had been discontinued largely by the stagnation of the security markets incident to the general business depression.

RECAPITULATION

The outstanding events of the year in the public protection of investors appeared in Federal and not in State activities. The States, however, did not manifest a tendency to allow the Federal Government to usurp the regulations of the traffic in securities; in fact, the States generally made their Blue Sky laws more strict. The enactment of the Federal Securities Act upon the general recommendation of the President was the initial entrance of the Federal Government into a realm of social control heretofore exercised by the States. The Act is patterned largely after the ''full publicity through registration'' type of legislation, but it holds provisions which place a heavy burden of Administrative discretion upon the Federal Trade Commission, which, if exercised, make the Act tantamount to a ''permit act.'' Due to the paralysis in the issues market and the short period the Act has been in operation, it is difficult to appraise its results to date. In addition to this Act, a substantial ground work has been laid for legislation affecting exchanges. These exchanges remain the last agencies for the dealing in securities and the placing of private funds for individuals which operate under private regulation and control.

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[1] Proceedings of the Investment Bankers Association of America, Annual Convention, October, 1933, and statement by Roger Babson, Washington, D. C. *Post*, September 17.

[2] *Commercial and Financial Chronicle*, letter from Baldwin B. Bane, Chief of the Securities Section.

BANKING AFFAIRS

By Gurden Edwards

Secretary, Economic Policy Commission, American Bankers Association

DIFFICULTIES OF STATISTICAL COMPARISON

Cataclysmic changes that took place in the American banking structure during 1933 render impossible the preparation of this year's article on banking affairs statistically in line with those of previous years. The practice has been to analyze the official data supplied by the Comptroller of the Currency as of June 30 each year covering all banks in the United States, pointing out the changes that had taken place during the preceding twelve months' period and commenting on the reasons and significances of these changes. This cannot be carried out this year for the reason that early in 1933 the entire banking structure was threatened with dismantlement by a nation-wide public panic in respect to the banks, resulting in complete suspension of banking operations for a brief period under Federal Government auspices, followed by a cautious resumption of banking, still under the protection of the National Administration and under conditions that brought about material changes in the basis and character of the country's chief financial mechanism. As a result the banking structure as it now stands at the opening of 1934 cannot be directly compared with that which existed at the opening of 1933.

STATISTICAL PRESENTATION AS OF CLOSE OF 1932

The last comprehensive picture of what may be considered the old banking structure of the United States is that supplied in the report of the Committee on State Bank Research of the State Bank Division, American Bankers Association, giving detailed figures for all classes of banks in the United States as of Dec. 31, 1932. On that date banks of all classifications numbered 18,500 institutions with aggregate resources of $57,747,000,000. Aggregate capital, surplus and undivided profits amounted to $7,571,000,000. Total deposits amounted to $45,528,000,000. These figures, based on the same sources and methods of compilation as used for years by the Comptroller for compiling the series of statistical statements picturing the condition of the Nation's banking structure as of June 30 each year, serve to bring these data down to the opening of 1933 as a background for the sweeping alterations that took place during that year.

THE PRESIDENTIAL CAMPAIGN AND AFTER

Bank Failures and Causes.—A necessary prelude to the description of these changes is a presentation of the bank failure figures during the closing months of 1932 and the opening months of 1933, together with a discussion of the conditions and causes that lay behind these failures. During the latter half of 1932, if the figures showing the number of failures occurring each month in the United States are to be taken as an index, there had begun to develop a distinct return of public confidence in the banks. Whereas in January, 1932, 342 banks failed, by September this number had dropped to 67. However, during the presidential campaign that was in progress during these latter months of 1932, banking was subject to discussions on the part of representatives of all parties that were universally critical and frequently demagogic, and often placed responsibility for the national business depression upon the banking institutions, apparently on the assumption that their misfortunes were a large part of the cause of the breakdown of the nation's economic life, rather than being in main part a result or at least a concomitant part of that breakdown. The inevitable result was to revive public distrust and fear in regard to the banks and this was reflected in an increase in bank failures. In October, 1932, they numbered 102 for the country as a whole, in November 93, and in December, 161.

Post-campaign Factors. — Even after the political campaign was over numerous further shocks rocked the banking structure. In December, 1932, there were a number of statements by national administration officials in reports to Congress, tending to cause added public suspicion and alarm in regard to the banking situation. In January, 1933, a Senator in debating the banking reform measure then before Congress, declared that unless broad branch banking were authorized as a matter of National policy, over 400 banks would fail in a very short time. Later in January, despite warnings that publication of loans that had been made to banks by the Reconstruction Finance Corporation eight or nine months earlier would be liable to cause a fresh unsettlement of public confidence against those banks revealed as necessitous borrowers, the House passed a resolution calling on the R.F.C. to publish these loans on the theory that the public was entitled to know what was being done with public funds. Publication of the loans was followed promptly by a new wave of hysteria, and in January the number of bank suspensions mounted to 241, a figure far higher than had occurred in any of the eleven precedin months, and in February 148 banks closed. During this period business activity and confidence continued t sink to lower levels, with rising unemployment and increasing public despondency. This further undermined the loan and investment assets of banks.

Elements of Public Distrust.—A Washington a deadlock appeared t develop between the executive and legislative branches of the government in regard to Federal taxation and other essential fiscal measures and financial uneasiness grew. During this period also Congressiona hearings continued to bring forth charges regarding apparent banking malpractices in certain large institutions that continued to excite public distrust in regard to banking Withdrawals of deposits from banks continued to increase, rising in many parts of the country to panicky runs, and then began a series of so-called bank holidays in state after state. Describing this course of events, the *Monthly Review of the Federal Reserve Bank* of New York for April, 1933, contains the following: "The climax of banking difficulties and resulting restrictions on bank operations reflected primarily the accumulative effects of the extraordinary decline in business volume during the past four years and the accompanying drastic decline in prices of commodities, securities, and properties of all kinds. These conditions had progressively reduced the ability of many borrowers to repay loans and reduced the market value of bank investments, and had thus created for a number of the banks an extremely diffiicult situation, which was heightened by the tendency of the public to call for the repayment of deposits in cash in unusual volume. Most of the banks, in spite of these conditions, were able to maintain sound and liquid positions, but others which were in communities most severely affected or which were themselves more vulnerable found difficulty in meeting demands upon them. Early this year (1933), following a renewed decline in commodity and security prices and some loss of the progress made last autumn toward the revival of business, a new wave of bank suspensions occurred. This increased the tendency of depositors, who were unable to distinguish between strong and weak banks, to withdraw their deposits in cash, which made necessary further liquidation of bank assets, and caused renewed pressure on prices. In the effort to gain time to devise plans to deal with these tendencies bank holidays were declared first in Michigan and then in other states, and legislation was enacted in a number of states permitting banks to limit the withdrawal of deposits.''

Bank Holidays. — The following chronology shows the spread of restrictions on bank operations beginning with the bank holiday in Michigan. It indicates the dates on which bank holidays or extensive limitations of bank operatians became effective in the different States:

February 14, Michigan; 23, Indiana; 25, Maryland; 27, Arkansas; 28, Ohio.

March 1, Alabama, Kentucky, Nevada, and Tennessee; 2, Arizona, California, Louisiana, Mississippi, Oklahoma, and Oregon; 3, Georgia, Idaho, New Mexico, Texas, Utah, Washington, and Wisconsin; 4, Colorado, Connecticut, Delaware, Florida, Illinois, Iowa, Kansas, Maine, Massachusetts, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Dakota, Vermont, Virginia, West Virginia, and Wyoming.

Currency Withdrawals and Reserve Losses.—''It soon developed that the efforts to check the conversion of deposits into cash only diverted the demands from one locality to another,'' the *Review* said further. ''Currency was paid out freely, but restrictions on payments became necessary in steadily widening areas, and the demands on banks that remained open were rapidly accelerated. Foreign funds, as well as those of domestic depositors, were withdrawn in increasing volume, and the hoarding of gold developed on an increasing scale. In the period of a little over three weeks between Feb. 8 and March 3, the withdrawals of currency by members banks from the Reserve Banks were over $1,700,000,000, the greater part of which occurred in the last week of the period. Out-of-town banks withdrew nearly $800,000,000 from their balances with New York City banks in order to meet the demands on them, and banks throughout the country found it necessary to draw more and more heavily upon the Federal Reserve Banks for additional credit. The reserve position of the Federal Reserve Banks was affected not only by the loss of reserves, but also by a large increase in reserve requirements against Federal Reserve notes outstanding. As a result the excess gold reserves of Federal Reserve Banks declined to a little over $400,000,000, as compared with a high point of nearly $1,500,000,000, in January. The burden fell most heavily on the New York Reserve Bank which was called upon to meet not alone the demands from its own district but large demands from other districts as well. To maintain its reserve position this bank found it necessary to rediscount a substantial amount of its paper with other Reserve Banks and sell them in addition some of its Government securities.''

Rehabilitation Measures. — ''The President's proclamation declaring a banking holiday from March 6 to March 9, inclusive, and the subsequent extension of this holiday for an indeterminate period, stopped the dissipation of bank resources, and gave opportunity for the development of a program for the rehabilitation of the banking system. This program was soon prepared, together with the necessary legislation, and was carried out rapidly. The emergency banking Act passed on March 9, among other things, authorized the Secretary of the Treasury to determine the conditions under which operations were to be resumed by member banks. It also authorized the issuançe of Federal Reserve

Bank notes to supplement Federal Reserve notes and assure an adequate currency supply. It further provided for the conservation of assets of banks that could not be licensed at once for full reopening, and supplied new means by which bank reorganizations could be effected.''

Reopening of Banks on License.—''On March 13, 14, and 15 member banks having approximately 90 per cent of the total deposits of all member banks were given licenses as sound institutions, and were permitted to resume full operations. In a number of unlicensed banks plans for reorganizations were carried forward rapidly, and a considerable part of the remaining banks were placed in the hands of conservators. While banks opened on license were authorized to pay out currency for every legitimate purpose they were not authorized to pay out currency for hoarding nor to pay out any gold or gold certificates. They were also requested to return to the Reserve Banks all gold and gold certificates in their possession. The Federal Reserve Board requested each Federal Reserve Bank to prepare a list of all those who had withdrawn gold recently from the Reserve Banks or from member banks and had not redeposited it by a given date. A rapid return flow of gold coin and gold certificates to the Reserve Banks ensued, which by March 29 aggregated over $600,000,000. This return flow of gold, together with a reduction in the amount of reserve required against Federal Reserve notes outstanding, caused a rapid rise in the excess gold reserves of the Federal Reserve System to $1,172,000,000 on March 29.''

Return Flow of Currency.—''The total return flow of currency of all kinds in the three weeks ended March 29 was $1,185,000.000. A large part of the proceeds of this currency was used to retire Federal Reserve credit, and the indebtedness of member banks at all Federal Reserve Banks declined from more than $1,400,000,000 just before the middle of March to $545,000,000 on March 29. A moderate amount of Feder Reserve credit in other forms w also retired, and in addition the tot reserves of member banks were i creased by $211,000,000. In Ne York City the indebtedness of th principal banks at the Reserve Ban was reduced from well over $600 000,000 before the middle of Marc to $84,000,000 on March 29, and o that date some of the New York Cit banks again held moderate amoun of excess reserves.''

PRESIDENT'S PROCLAMATION CLOSING ALL BANKS

The President based his proclamation of March 6, referred to above closing all banks in the Unite States, on the fact that a nationa emergency existed and upon authority of a provision of the Act of October 6, 1917, known as the Trading With the Enemy Act, which appeared to bring the financial mechanism of the nation under National Government control in an emergency; on March 9, at the President's request Congress confirmed his action by enacting legislation giving to the executive branch of the governmen control of closed banks for the protection of depositors and authority to open such banks as they were found to be in sound condition or to require the reorganization of other institutions where deemed necessary to put them on a sound basis. In subsequent proclamations the President authorized the Secretary of the Treasury to supervise the reopening of member banks of the Federal Reserve System as conditions warranted and state banking authorities to carry out similar action in respect to other banks under state charters.

PRESIDENT'S RADIO ADDRESS TO THE NATION

On March 12 in a radio address to the nation, the President described in the following words the plan of reopening banks that would be followed: ''We start tomorrow, Monday, with the opening of banks in the twelve Federal Reserve Bank cities—those banks which on first examination by the Treasury have already been found to be all right. This will be followed on Tuesday by the resumption of all their functions by banks already found to be sound in cities where there are recognized clearing houses. That means about 250 cities of the United States. On Wednesday and succeeding days banks in smaller places all through the country will resume business, subject, of course, to the Government's physical ability to complete its survey. It is necessary that the reopening of banks be extended over a period in order to permit the banks to make applications for the necessary loans, to obtain currency needed to meet their requirements and to enable the Government to make common-sense check-ups. . . . State banks are following the same course as the national banks except that they get their licenses to resume business from the State authorities, and these authorities have been asked by the Secretary of the Treasury to permit their good banks to open up on the same schedule as the national banks. . . . There will be, of course, some banks unable to reopen without being reorganized. The new law allows the Government to assist in making these reorganizations quickly and effectively and even allows the Government to subscribe to at least a part of new capital which may be required.''

REOPENING OF THE BANKS

By March 29, under the operation of the foregoing plans, about 12,800 out of the 18,000 banks in operation before the crisis had been licensed to reopen on an unrestricted basis. Of this number, 4,766 were national banks, 621 state bank members in the Federal Reserve System and about 7,400 non-member state banks, including mutual savings banks and private banks operating under state supervision. Approximately 5,200 banks had not received unrestricted licenses; of this number, 1,141 were national banks, 166 were state member banks and about 3,900 were non-member banks. The deposits of member banks that were allowed to reopen between March 13 and March 29 had aggregated $25,850,000,000 on Dec. 1, 1932, the last figures available, and it was, therefore, estimated that the deposits of the reopened member banks by March 29 represented about 90 per cent of total member-bank deposits, authoritative figures for other banks not being available. The progressive development of this realignment of the storm-racked banking structure is pictured in the following tabulations based on official figures:

BANKS LICENSED AND NOT LICENSED AS OF JUNE 28, 1933.

	No. of Banks	Deposits on Latest Call Date (Generally Dec. 31, 1932)
Licensed.....	13,770	$31,524,400,000
Not Licensed.	3,120	2,498,250,000
Total.....	16,890	$34,022,650,000

These data include all banks other than mutual savings banks. It would appear from the above figures that by mid-year 1933 over 92 per cent of the banking deposits had again been made available and that over 81 per cent of the then existing banking institutions were in unrestricted operation again. The following tabulation regroups the above date by classes of banks:

LICENSED AND NOT LICENSED BANKS BY CLASSES

	National Banks		State Federal Reserve Member Banks		State Non-Members in Federal Reserve	
	No.	Deposits	No.	Deposits	No.	Deposits
Licensed......	4,899	$16,789,549,000	703	$9,663,082,000	8,168	$5,071,774,000
Not Licensed..	987	1,112,800,000	117	312,564,000	2,016	1,072,883,000
Total.......	5,886	$17,902,349,000	820	$9,975,646,000	10,184	$6,144,657,000

The problem of handling the cases of the unlicensed banks was met in various ways by both the state and national banking authorities in accordance with conditions presented in each instance. Some were subsequently granted licenses as the lapse of time gave them opportunity to put themselves in satisfactory condition, either through the supplying of new capital on the part of their stockholders or through other plans of reorganization approved by the authorities, sometimes involving the acceptance by depositors of stock in lieu of a portion of their deposit claims. In other cases mergers or absorptions were carried out, but in many cases it was found necessary to place the unlicensed institutions in receivership. A statement of the Comptroller, referring to national banks, indicated the operation of these various solutions in this field; at the end of the year, he stated that 69 per cent of the 1,446 national banks unlicensed on March 16 had been licensed, chartered, absorbed or placed in receivership by Dec. 31. He added that more than 75 per cent of the national banks remaining unlicensed at the end of the year had received approved reorganization plans from the Comptroller's office, while the plans of 24.7 per cent had been disapproved.

THE RECONSTRUCTION FINANCE CORPORATION

Rebuilding the Banking Structure.—Another channel of Federal Government action in rebuilding the banking structure in 1933 was through broadened activities on the part of the Reconstruction Finance Corporation. This corporation was first put into operation early in 1932. It was predicated on the theory that by enabling banks, among other institutions, to obtain government loans on the security of their sound assets to meet their cash requirements without sacrificing their securities investments under the then prevailing unfavorable market conditions, or without being compelled to force rapid reduction of loans to customers, an orderly continuation of the process of national liquidation would be promoted.

Loans and Repayments.—Pursuant to this plan the R. F. C. between Feb. 2, 1932 and Dec. 31, 1933, authorized loans to 8,941 institutions of all kinds of $4,142,900,000, including agricultural credits, advances to railroads and railroad receivers and loans to insurance companies and banks. Of this total the loans disbursed to banks and trust companies aggregated $1,429,580,700, distributed among 6,457 institutions. By Dec. 31, 1933, the amount of repayments by bank borrowers was $710,659,700, or 49.7 per cent of the advances received, leaving $718,921,000 outstanding.

Capital Purchases. — While this phase of the R. F. C. plan served a large part of the intended purpose, renewed unsettlement and continued depreciation of asset values created capital inpairments in many institutions, resulting in a situation that could not be met by means of loans. The R. F. C. therefore offered to purchase preferred stock or capital notes of banks, urging as a matter of public policy that all banks, whether in need of such assistance or not, take part in this plan so as to give added strength to the entire bank capital structure. On Dec. 31 the Corporation announced that it had purchased preferred stock of 2,235 banks in the amount of $474,709,200, and capital notes and debentures of 2,309 banks in the amount of $342,102,650, a total of capital funds of $816,811,850 supplied to 4,544 banking institutions. One important result attributed by Chairman Jesse H. Jones of the Reconstruction Finance Corporation to this measure was that it enabled many banks to qualify for membership in the Federal Deposit Insurance Corporation which otherwise would not have been admissible.

THE FEDERAL DEPOSIT INSURANCE CORPORATION

Banking Act of 1933.—The Federal Deposit Insurance Corporation, created by provisions of the Banking Act of 1933, was another of the major government measures aimed to strengthen public confidence in the banking structure. The main features of this measure are as follows: The corporation was created to aid in the liquidation of closed banks and to insure deposits in such banks as are designated as eligible for membership. The Federal Government will subscribe $150,000,000 for stock in the Corporation; this payment will be subject to call, and is entitled to dividends at the same rate as stock owned by banks. Federal Reserve Banks will subscribe approximately $140,000,000 to Class B stock, each to the amount of one-half of its surplus; one-half of this amount is payable at once, and the balance upon 90 days' notice; this stock will not draw dividends. Each insured bank will subscribe for Class A stock in an amount equal to ½ of 1 per cent of its total deposits on or before July 1, 1934, at which time the permanent insurance fund becomes effective, one-half of the subscription to be paid July 1, 1934, and the balance upon call; the amount of stock is subject to annual adjustment based on increase or decrease of deposits; this stock will be eligible to receive 6 per cent cumulative dividends, or 30 per cent of the earnings of the Corporation, whichever may be the larger; these subscriptions are expected to create another $150,000,000 of capital funds.

Temporary Insurance Fund. — Meanwhile, beginning Jan. 1, 1934, a temporary insurance fund, insuring deposits up to $2,500 each, became effective, to continue until July 1, under which shall be covered each licensed Federal Reserve member bank and each non-member state bank presenting a certificate from the proper state official showing solvency, if approved after examination by the insurance corporation. Before admission to the fund each bank was required to file a statement of the number of its depositors and the total amount of deposits eligible for insurance under this temporary plan, and to pay to the Corporation an amount equal to one-half of 1 per cent of the total amount of the deposits so certified, one-half to be paid at time of admission, the remainder subject to call. If additional funds to meet insured losses are required each bank is liable for one additional assessment of not more than ½ of 1 per cent of insured funds, prior to July 1, 1934, when the temporary insurance will be discontinued. Shortly after the temporary insurance plan went into effect the government announced that over 99 per cent of all banks had entered the plan and that 97 per cent of the number of bank depositors, estimated at 54,000,000 in 13,341 banks, were covered under it.

Permanent Insurance Plan.—All member banks are required to become members of the Permanent Insurance Plan, effective July 1. They will be required to apply for Class A stock in the Corporation and be examined and certified by the Comptroller of National banks, or the Federal Reserve Board for state banks, as having assets adequate to meet all deposits and other liabilities shown by the books. All non-member banks which are members of the temporary fund and which subscribe to Class A stock of the permanent Insurance Corporation may be insured until July 1, 1936; after July 1, 1936 only Federal Reserve member banks can be insured. The permanent fund will insure 100 per cent of the first $10,000 of each deposit in full; 75 per cent of the next $40,000; and 50 per cent of the remainder of each deposit. Insured banks will be liable for assessments of ¼ of 1 per cent of total deposits whenever the debit balance of the "insurance fund" to which losses due to the guaranty are charged amounts to as much as ¼ of 1 per cent of total deposit liabilities, there being no limitation upon the number of such assessments which may be levied.

Procedure.—When an insured National bank closes the Corporation will act as receiver. It shall set up a new National bank, without stock and without directors, to be managed by an officer designated by it.

The insured deposit liabilities shall be determined promptly and the Corporation shall pay to the bank sufficient cash to meet withdrawal demands, and credit the new bank with the remainder of the amount of insurance. It may accept new deposits which shall be kept on hand in cash, invested in United States securities, or deposited with the Corporation or with the Federal Reserve Bank. The Corporation is authorized to capitalize the new bank by the sale of stock, transfer its business to any other bank in the same place which will take over the assets, assume the liabilities and pay therefor such amount as may be agreed upon, or place it in liquidation and wind up its affairs. An analogous procedure is followed when an insured State member bank is closed. The Corporation may have outstanding at any one time notes, debentures, bonds or other obligations, redeemable at the option of the Corporation, aggregating three times the amount of its capital. A rough estimate of such amount is $1,400,000,000.

BANKING UNDER THE NRA

Although the banking business was not deemed by banking authorities to be subject to the National Industrial Recovery Act, under the leadership of the American Bankers Association this field voluntarily accepted jurisdiction and drew up the Bankers Code of Fair Competition. This code was submitted to the National Recovery Administration, approved by it after a public hearing and, upon recommendation of General Johnson, was signed by the President on Oct. 3. It provided, in addition to provisions regarding wages, hours of employment and the abolition of child labor, for fair trade practice provisions aimed to create uniformity in banking operations and fair competition among banks with respect to banking hours, interest rates, analysis of accounts, service charges and trust practices. Rules were prepared by the Bankers Code Committee, appointed under the code, to bring about the establishing of unified practices, in accordance with those followed by the majority of banks for many years, of analyzing their customers' accounts and relationships and in adopting such schedules of service charges or conditions in respect to the utilization of banking facilities as to avoid operating losses in all aspects of a bank's business.

THE BANKING STRUCTURE AT THE OPENING OF 1933

The last complete picture of what may be considered the old banking structure of the United States, large parts of which disappeared with the events of March, 1933, is that presented in the figures compiled by the Committee on State Bank Research of the State Bank Division, American Bankers Association, in its second annual survey of bank resources and liabilities published early in 1933. These figures picturing the so-called dual banking system, namely, the national banks on one hand and on the other, banks other than national banks operating under state auspices and including state commercial banks, trust companies, stock savings banks and mutual savings banks as a group are presented in the table on the following page (403).

THE NATION'S SAVINGS

Data of savings in banks of all kinds in 1933, compiled by the Savings Division, American Bankers Association, reflect heavily the ravages of four years of depression. On June 30, 1933, total savings and time deposits aggregated $21,424,226,000, marking a recession as compared with a year earlier of $2,857,120,000, or 11.8 per cent. This was also $7,054,405,000 below the high mark of savings for the nation, recorded in June, 1930, when the total was reported at $28,478,631,000, or a drop of 24.8 per cent. The per capita savings for the country shown by the 1933 figures was $170 as compared with $194 for 1932. The tables (pp. 403, 404) give a statistical picture of savings in banks in 1933 as compared with the immediately preceding years.

RESOURCES AND LIABILITIES OF ALL REPORTING BANKS IN THE UNITED STATES AND POSSESSIONS, DEC. 31, 1932

(In thousands of dollars)

	National Banks	All Banks Other Than National	Total Banks
Number of Institutions	6,011	12,489	18,500
RESOURCES			
Loans and discounts (including rediscounts)	$ 9,824,466	$11,673,430	$21,497,896
Overdrafts	3,676	9,151	12,827
Investments	7,570,690	15,720,387	23,291,077
Banking house, furniture and fixtures	758,676	887,655	1,646,331
Real estate owned other than banking houses	169,759	449,786	619,545
Cash in vault	306,349	753,296	1,059,645
Reserve with Federal reserve banks or other reserve agents	1,625,840	1,792,251	3,418,091
Other amounts due from banks	2,513,648	942,046	3,455,694
Exchanges for clearing house and other cash items	60,847	333,852	394,699
Redemption fund; due from U. S. Treasurer	39,242	....	39,242
Other resources	395,743	916,044	1,311,787
Total	$23,268,936	$33,477,898	$56,746,834
LIABILITIES			
Capital stock paid in	$ 1,631,059	$ 1,605,947	$ 3,237,006
Surplus	1,171,215	2,627,072	3,798,287
Undivided profits—net	269,197	266,788	535,985
Reserves for dividends, contingencies, etc.	166,627	342,273	508,900
Reserves for interest, taxes, and other expenses accrued and unpaid	[1]	75,450	75,450
National bank notes outstanding	776,749	....	776,749
Due to banks	2,611,584	1,379,997	3,991,581
Certified and cashiers' checks and cash letters of credit and travelers' checks outstanding	[2]	86,764	86,764
Demand deposits	8,264,158	8,595,540	16,859,698
Time deposits (including postal savings)	7,359,689	16,822,477	24,182,166
United States deposits	250,602	35,706	286,308
Deposits not classified	....	121,708	121,708
Total Deposits	(18,486,033)	(27,042,192)	(45,528,225)
Bills payable and rediscounts	348,528	684,525	1,033,053
Agreements to repurchase securities sold	22,053	9,711	31,764
Acceptances executed for customers	207,285	275,422	482,707
Other liabilities	190,190	548,518	738,708
Total	$23,268,936	$33,477,898	$56,746,834

[1] Included in "Reserves for dividends, contingencies, etc."
[2] Included in "Due to banks."

SAVINGS DEPOSITS IN CLASSIFIED BANKS

(In thousands of dollars)

Year	Mutual Savings Banks	State Banks	Trust Companies	Private Banks	National Banks
1928	$8,668,090	$7,597,977	$4,080,324	$16,797	$8,049,773
1929	8,903,557	7,369,512	4,022,735	33,440	7,888,567
1930	9,205,580	6,803,672	4,349,057	23,546	8,096,776
1931	10,034,022	5,985,274	4,128,200	27,413	8,044,709
1932	10,039,958	4,259,494	3,005,439	17,997	6,958,458
1933	9,760,221	3,045,218	2,696,336	10,371	5,912,080

Another important phase of savings is school savings banking, developed under the leadership of the American Bankers Association's Savings Division on a plan by which education in thrift is carried on along with other work in school hours on a wide scale throughout the country. The data * show the facts in this plan over a period of years, revealing a severe recession for the depression years as the children were forced to draw on their savings by family difficulties (*see* table* p. 404).

TOTAL DEPOSITS AND DEPOSITORS IN ALL BANKS

Year	Total Savings Deposits	Total Number Savings Depositors	Per Capita Savings Deposits
1928	$28,412,961,000	53,188,348	$237
1929	28,217,811,000	52,764,127	235
1930	28,478,631,000	52,729,432	232
1931	28,219,618,000	51,399,446	227
1932	24,281,346,000	44,352,106	194
1933	21,424,226,000	39,267,733	170

SCHOOL SAVINGS IN THE UNITED STATES*

Year	Number of Schools	Number Participating	Deposits	Net Savings
1927–28	13,835	3,980,237	$26,005,138	$9,476,391
1928–29	14,254	4,222,935	28,672,496	10,539,928
1929–30	14,610	4,597,731	29,113,063	7,690,529
1930–31	14,628	4,482,634	25,977,216	2,167,499
1931–32	12,686	3,106,510	17,680,364	(Loss) 2,926,902
1932–33	10,890	3,080,685	10,332,569	(Loss) 2,315,252

AMERICAN BANKERS ASSOCIATION The American Bankers Association, the national organization of banking including in its membership the great majority of the 14,000 national and state commercial banks, trust companies and savings banks in the nation, held at Chicago in 1933 its fifty-ninth annual convention. The general officers of the Association elected for 1933-1934 were: President, F. M. Law, President First National Bank, Houston, Texas; First Vice-President, Rudolf S. Hecht, Chairman of Board Hibernia National Bank, New Orleans, Louisiana; Second Vice President, Robert V. Fleming, President Riggs National Bank, Washington, D. C.; Treasurer, Hal Y. Lemon, Vice President National Bank of Detroit, Detroit, Michigan; Executive Manager, F. N. Shepherd, American Bankers Association, New York City.

TRUST BANKING

BY GILBERT T. STEPHENSON

VICE PRESIDENT, EQUITABLE TRUST COMPANY, WILMINGTON, DEL.

GENERAL

The two noteworthy events in Trust Banking in the United States during 1933 were (1) the adoption of the Statement of Principles of Trust Institutions and (2) the record of stability of trust business in the midst of the reorganization of commercial banking with which trust business is so intimately associated.

THE STATEMENT OF PRINCIPLES

Although the Statement of Principles of Trust Institutions is now a part of the Bankers Code, the adoption of the Statement of Principles antedated and was wholly independent of the adoption of the Bankers Code. In October, 1932, the Trust Division of the American Bankers Association decided to prepare and publish a statement of principles. The statement was prepared by February, 1933 and was formally adopted by the Executive Committee of the Trust Division and by the Executive Council of the American Bankers Association in April, 1933. In September, 1933, the Statement of Principles was taken over without a change and incorporated in the Bankers Code. The significance of the Statement's independence of the Bankers Code is that the Statement is a permanent chart for the guidance of trust institutions and would remain binding upon them, morally if not legally, even though the Bankers Code itself should cease to be binding upon commercial banks.

The Statement of Principles is not the enunciation of any new doctrines of trust law and practice, but instead, it is the assembly, arrangement, and publication of fundamental principles to which trust institutions in general subscribe and according to which they have been carrying on their trust business all the while. The following are typical provisions of the Statement of Principles:

OPERATION OF TRUST DEPARTMENTS

''Section 1. Separation of Trust Properties. The properties of each trust should be kept separate from those of all other trusts and separate also from the properties of the trust institution itself.

''Section 2. Investment of Trust Funds. The investment function of a trustee is care and management of property, not mere safekeeping at one extreme or speculation at the other. A trust institution should devote to its trust investments all the care and skill that it has or can reasonably acquire. The responsibility for the investment of trust funds should not be reposed in an individual officer or employee of a trust department. All investments should be made, retained or sold only upon the authority of an investment committee composed of capable and experienced officers or directors of the institution.

''When the trust instrument definitely states the investment powers of the trustee, the terms of the instrument must be followed faithfully. If it should become unlawful or impossible or against public policy to follow literally the terms of the trust instrument, the trustee should promptly seek the guidance of the court about varying or interpreting the terms of the instrument and should not act on its own responsibility in this respect except in the face of an emergency, when the guidance of the court beforehand could not be obtained. If the trust instrument is silent about trust investments or if it expressly leaves the selection and retention of trust investments to the judgment and discretion of the trustee, the latter should be governed by considerations of the safety of principal and dependability of income and not by hope or expectation of unusual gain through speculation. However, a trustee should not be content with safety of principal alone to the disregard of the reasonable income requirements of the beneficiaries.

''It is a fundamental principle that a trustee should not have any personal financial interest, direct or indirect, in the trust investments, bought for or sold to the trusts of which it is trustee, and that it should not purchase for itself any securities or other property from any of its trusts. Accordingly, it follows that a trust institution should not buy for or sell to its estates or trusts any securities or other property in which it, or its affiliate, has any personal financial interest, and should not purchase for itself, or its affiliate, any securities or other property from its estates or trusts.

COMPENSATION FOR TRUST SERVICE

''Section 1. A trust institution is entitled to reasonable compensation for its services. Compensation should be determined on the basis of the cost of the service rendered and the responsibilities assumed. Fees in any community for trust services should be uniform and applied uniformly and impartially to all customers alike.''

Since the President signed the Bankers Code including the Statement of Principles of Trust Institutions on Oct. 3, 1933, city and state associations of trust institutions have been busily engaged in the preparation and adoption of uniform schedules of fees covering all kinds of trust service. Thus the fees for trust services are being rapidly standardized under the Code and trust customers and trust institutions alike are assured that minimum fees in any community for trust services will be uniform and applied uniformly and impartially to all customers alike.

STABILITY OF TRUST BUSINESS

Trust business has proved itself to be stable and trust service continuous and unbroken in the midst of the reorganization of commercial banking. Ninety-three per cent of the personal trust assets of national banks have been unaffected by bank closings and the percentage would be substantially the same for state banks and trust companies.

Following the bank holiday in March, 1,026 national banks were placed in the hands of conservators. Of the 1,026 banks under conservatorship, 345, or about one third, had trust departments. The trust assets in these 345 closed national banks aggregated $317,000,000, or less than $1,000,000 to the trust department on the average. These trust assets were held in 16,000 accounts, or less than $20,000 to the account. The trust assets, however, do not include real property; they include personal property only—cash, stocks, bonds and other kinds of personal property. The statement that the personal trust assets averaged less than $1,000,000 to the trust department and the trust accounts less than $20,000 apiece should not be construed as a suggestion that the trust departments of all these 345 closed national banks were as small as that would indicate. They range in size, says the Comptroller of the Currency, from very small ones having only one or two trust accounts to very large ones having many and varied trust accounts.

That only a comparatively small percentage of the trust assets of national banks was involved in these closings following the bank holiday is shown by the following figures. As of June 30, 1932, there were 1,774 active trust departments of national banks and 104,000 trust accounts with personal trust assets of $5,000,000,000. Of the 1,774 national banks with active trust departments on June 30, 1932, over 80 per cent opened without restriction as soon as the ban of the bank holiday was lifted, and they have continued the operation of their trust departments in the usual and normal way. Of the 104,000 trust accounts in national banks, 88,000 or over 84 per cent, have been wholly unaffected by the bank closings. Of the $5,000,000,000 of personal trust assets, $4,683,000,000 or over 93 per cent, have been unaffected by bank closings.

Looking at it in this way, one finds that the great bulk of trust business in national banks, whether considered in the light of the number of trust institutions or the number of trust accounts or the amount of personal trust assets involved, is being executed in the usual and normal manner, as if there had never been a bank holiday or any bank closings.

The following is a statement made by the Comptroller of the Currency after six months' experience operating the trust departments of national banks under conservatorship: "In view of the number of banks still in the hands of conservators, it is impossible to prophesy with any degree of accuracy as to the final outcome of all the trust departments. However, if experience thus far can be taken as a criterion, it is the opinion of the Comptroller of the Currency that the general situation with respect to the trust departments involved is, on the whole, very satisfactory and the 'record' constitutes an important contribution to the maintenance of public confidence in the corporate fiduciary. Trust administration has never laid claim to infallibility of judgment or foresight, and there have been, of course, a few isolated instances where thorough investigation has disclosed questionable methods of trust department procedure, or where the ultimate disposition of the claims of trust department customers are matters of adjustment and litigation. There will probably be trust critics or certain 'enemies' of corporate trusteeship, who, prompted by selfish or unworthy motives, will try to capitalize upon these isolated cases. However, criticism so motivated and based upon such foundations cannot impeach the record or gainsay the growing public confidence in trust departments of national banks.''

THE FEDERAL RESERVE SYSTEM

By Carl E. Parry

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THE BANKING CRISIS

Emergency Measures. — Continued disturbance in the banking situation early in 1933, after more than three years of business depression, led to the development of a banking crisis in February and March, to proclamation by the President of a national emergency requiring the temporary suspension of all banking operations, and to passage of emergency banking legislation which conditioned all banking operations during the remainder of the year. Redemption of paper currency in gold was suspended, gold was recalled from private holdings and, in April, an embargo was placed on gold exports. Legislation was passed in May authorizing the President in his discretion to issue currency up to $3,000,000,000 and to decrease up to 50 per cent the gold content of the dollar. Following these events there were substantial movements of funds from the United States to foreign countries, and in the foreign exchange markets the value of the dollar declined between April and November by more than one-third.

Banking Holidays.—It was about the middle of February that the banking crisis began to develop in acute form. Withdrawals of deposits from banks, which had previously consisted in large part of the transfer of deposit accounts from one bank to another, were to an increasing extent in the form of currency, including toward the end of February considerable amounts of gold. Gold withdrawals represented in part domestic hoarding and in part losses of gold to foreign countries reflecting a movement of funds from the United States. Member and non-member banks placed under pressure by these developments were in frequent instances obliged to pledge or dispose of all or almost all of their sound assets, disbursing the proceeds to meet the demands of such depositors as were withdrawing their money, and then when finally compelled to close had only inferior assets available to meet the claims of remaining depositors. It was largely to protect remaining depositors by halting this process that banking holidays were declared in individual States, beginning with Michigan on Feb. 14, and finally in the country as a whole.

Currency Demand.—Between Feb. 15 and March 4 there were increased demands for currency amounting altogether to $1,630,000,000, including demands of $300,000,000 for gold coin and gold certificates. Three-fourths of these demands occurred during the week beginning Feb. 27 and more than half were concentrated in the first three days of March. It was from the Federal Reserve banks that the member and non-member banks of the country obtained this currency, both through borrowing and through using the proceeds of Reserve bank purchases in the open market of bankers' acceptances and United States Government securities. At the time of the crisis the Reserve banks loaned $1,170,000,000 to member banks and in addition made purchases in the open market amounting to $460,000,000. The paying out of Federal Reserve notes, against which 40 per cent in gold had to be held as reserve, together with the paying out of gold itself, had the effect at the Federal Reserve banks of reducing their reserves in excess of legal requirements from $1,476,000,000 on Feb. 1 to $416,000,000 on March 4. Meanwhile, the combined reserve ratio of the twelve Federal Reserve banks declined to 45.1 per cent.

Banking Business Suspended.—On Saturday, March 4, the banks in almost all the States were closed, in consequence of official action in the several States, or were operating under restrictions, and on the morning of Monday, March 6, the President of the United States issued a proclamation suspending all banking business for the time being. The banking holiday continued during the rest of the week. It was followed on March 13-15, and more slowly thereafter, by the reopening throughout the country of such member and non-member banks as were judged by the authorities to be in sound condition, member banks under license from the Secretary of the Treasury and non-member banks under license from State authorities. By the end of March about 12,800 banks, out of 18,000 in operation before the crisis, had been licensed to open on an unrestricted basis; by the end of October over 14,000 had been licensed. During the banking holiday and thereafter banks were forbidden to pay out any gold into circulation or to pay out any currency for hoarding.

Return of Currency and Gold to Banks.—Restoration of confidence in banks after the crisis soon resulted in large returns of currency and gold to the member banks and the Federal Reserve banks. By the first week in April the amount returned approximated three-fourths of what had been withdrawn at the time of the banking crisis, and the member banks had reduced substantially their borrowings at the Reserve banks. On April 5 the reserve ratio of the Federal Reserve banks was 59.7 per cent and their excess reserves $1,260,000,000.

SUSPENSION OF THE GOLD STANDARD

Ban on Gold Hoarding and Export.—An Executive order of March 10, 1933, prohibited the export of gold coin, gold bullion, or gold certificates from the United States or any place subject to its jurisdiction, except in accordance with regulations prescribed by or under license issued by the Secretary of the Treasury and imposed restrictions on dealers in foreign exchange. The holding of gold by anyone within the continental United States, either in the form of gold coin, gold bullion or gold certificates, was forbidden by an Executive order of April 5, 1933, with certain exceptions, among which were included gold coin and gold certificates in an amount not exceeding in the aggregate more than $100 belonging to any one person. Some gold exports, amounting to more than $15,000,000, were licensed during the next two weeks, but on April 20 another Executive order placed an embargo on the export of gold, with certain specified exceptions, and thereafter the operation of the gold standard in the United States was officially suspended. An Executive order of Aug. 29 authorized the Secretary of the Treasury to receive on consignment for sale, including sale abroad at the best price obtainable, gold recovered from natural deposits in the United States, and this practice continued to be followed for about two months.

R. F. C. Gold Buying.—On October 25, the Reconstruction Finance Corporation was authorized to acquire gold newly mined in the United States, at prices to be officially determined from time to time. Beginning on the same date the Corporation offered to accept such gold in exchange for its own obligations, first at $31.63 per fine ounce, a price above that prevailing abroad, and then at prices advancing from day to day; on November 15 the price was $33.56. On Oct. 22, the President announced that the Government was prepared to buy or sell gold in the world market, and on Nov. 1 the Chairman of the Reconstruction Finance Corporation stated that the Corporation had authorized the Federal Reserve Bank of New York, as its fiscal agent, to sell the notes of the Corporation and take in payment therefor refined gold purchased and held abroad or imported into the United States after October 31, 1933.

Dollar Decline in Foreign Exchanges.—In the foreign exchange markets the value of the dollar declined somewhat just before the banking crisis, in terms of the currencies of leading foreign countries. During the crisis, dealings in foreign exchanges were suspended, but after dealings were resumed on March 13, under official control, the exchange value of the dollar remained steady for several weeks approximately at par. During the third week in April, however, when official announcement was made that an embargo was about to be placed on gold exports, and after the application of this embargo, the value of the dollar declined sharply in terms of the French franc and other gold currencies, to a level at the end of April approximating 85 per cent of its gold parity, and further thereafter with some interruptions to about 65 per cent of gold parity in September. Towards the middle of November the value of the dollar in terms of the French franc approximated 62 per cent of its gold parity, at a time when gold purchases were being made at successively higher dollar prices by the Reconstruction Finance Corporation.

FEDERAL RESERVE CREDIT POLICY

Policy of Monetary Ease.—The Federal Reserve System continued to pursue during the year, with an interruption at the time of the banking crisis, the policy of monetary ease which it had followed since the beginning of the depression. The Reserve banks bought additional Government securities and lowered discount rates. Reflecting the System's credit policy, member banks came into possession of increased reserve balances and accumulated an unprecedented volume of excess reserves. Money rates declined during the year to low levels. There was a moderate increase after the first quarter in the volume of member bank credit outstanding, reflecting in part the purchase of Government obligations by the member banks. The rate of turnover of bank deposits, or the velocity of these deposits, showed a sharp increase from March to July, accompanying a rapid growth in business activity, but subsequently declined when business again became less active.

Open-Market Operations.—Except for a temporary increase at the time of the banking crisis in loans to member banks and in Reserve bank holdings of acceptances, the principal operations of the Federal Reserve banks in 1933 were their purchases of United States Government securities. The Reserve banks bought such securities every week from the latter part of May until the middle of November. Total purchases approximated $600,000,000 and brought Reserve bank holdings to the highest level that they have ever reached. Funds arising from these purchases and from the return between March and July of currency from circulation were used by the member banks to reduce their indebtedness to the Reserve banks to a low level and to increase their reserve balances to the highest level on record. From the time of the banking crisis in March, 1933, to the middle of November, the reserve balances of the member banks increased by $870,000,000, while their reserve requirements increased by about $200,000,000, reflecting growth in their deposits subject to reserve. The larger part of the growth of reserves of the member banks, therefore, was reflected in an increase of their excess reserves, which rose in October and November to a level approximating $800,000,000. The table (p. 410) shows, for the period from the banking crisis to Nov. 15, 1933, also for the year ending on that date, changes in Reserve bank credit and factors in these changes:

Discount Rates. — Discount rates at the Federal Reserve banks, which by the end of 1932 had been reduced to 2½ per cent at New York and Chicago and 3½ per cent at other Reserve regional banks, were advanced by one per cent at these two cities at the time of the banking crisis, but were subsequently reduced again at New York and Chicago and further reduced at other Reserve banks. In the middle of November the Reserve bank discount rate at New York was 2 per cent; at Chicago, Boston, Cleveland and San Francisco 2½ per cent; at St. Louis 3 per cent, and at the other 5 Reserve banks 3½ per cent. Official buying rates on bankers' acceptances were also reduced during the year, the rate on the shorter maturities from one per cent to ½ per cent.

RESERVE BANK CREDIT AND FACTORS IN CHANGES

(In millions of dollars)

	Nov. 15, 1933	Changes	
		Mar. 8, 1933	Nov. 16, 1932
Bills discounted	111	−1,303	−196
Bills bought	15	−402	−20
United States Government securities	2,432	+551	+581
Other Reserve bank credit	6	+74	−10
TOTAL RESERVE BANK CREDIT	2,564	−1,080	+356
Monetary gold stock	4,322	+79	+38
Treasury currency adjusted	1,930	+17	+1
Money in circulation	5,654	−1,884	+25
Member bank reserve balances:			
Required	1,831	+208	−67
Excess	814	+661	+312
Total	2,645	+869	+245
Unexpended capital funds, non-member deposits, etc.	518	+32	+126

MONEY RATES

Money rates, after a sharp but temporary advance at the time of the banking crisis, declined further in 1933 to the lowest levels in several decades, reflecting both the continuing influence of the business depression on the effective demand for bank credit and also the further influence of Federal Reserve credit policy. The growth of member-bank reserve balances during the larger part of the year, largely in consequence of the open-market operations of the Reserve banks, and the appearance at member banks of a large volume of excess reserves, were accompanied by a decline in all classes of open-market rates. The commercial paper rate declined in September to 1¼ per cent, the lowest level on record, the call money rate to ¾ per cent, the rate on short-term bankers' acceptances to ¼ per cent, and the yield on short-term United States Government securities to nominal figures of less than 1/10 per cent. Rates charged customers on over-the-counter loans, by leading banks in leading cities, also declined during the year.

MEMBER AND NON-MEMBER BANK CREDIT

Fall of Deposits.—From the end of 1932 to the close of the banking holiday on March 15, 1933, there was a decrease in the deposits of commercial banks—*i.e.*, all banks except mutual savings banks—from about $36,000,000,000 to about $27,000,000,000. This decrease reflected chiefly the closing of banks at the time of the crisis. From the middle of March to the middle of November deposits of licensed banks (other than mutual savings banks) increased by about $5,000,000,000 or 20 per cent, to about $32,000,000,000, reflecting chiefly the licensing of additional banks (including reorganized and new banks) and the paying out, in part, of deposits of banks placed in liquidation or receivership; the purchase of about $1,000,000,000 of United States Government securities and acceptances by the banks, and the return of currency and gold to the banks from hoards. In addition, there was a considerable increase in bankers' balances which are in the nature of a duplication.

Turnover of Deposits. — Changes during the year in the velocity, or rate of turnover, of bank deposits were again proportionately larger, as in other recent years, than changes in the deposits themselves. Between the month of March, when the rate of turnover was at a low level, and the month of July, deposits at reporting member banks in 90 leading cities increased by less than 10 per cent, while the velocity of their turnover increased by about 30 per cent. In subsequent months, when there was little change in the volume of deposits, the rate of turnover decreased substantially. In March net demand plus time deposits of these banks were turning over at the rate of about 17 times per year, in July 22 times, in August, September and October 18 times.

INSURANCE OF BANK DEPOSITS

The Banking Act of 1933, which became law June 16, included provisions, effective Jan. 1, 1934 (or sooner if declared by the President), for the insurance of bank deposits, at first on a temporary basis for accounts up to $2,500 and later, effective July 1, 1934, for accounts up to $10,000 in full, for accounts up to $50,000 to the extent of 75 per cent of the excess over $10,000, and for larger accounts in excess of $50,000 to the extent of 50 per cent of the amount of the excess over $50,000. Funds for the purpose were to be provided by the Treasury ($150,000,000), the Federal Reserve banks (about $139,000,000), the member banks, for which participation is obligatory, and such non-member banks as might apply for and be admitted to participation in the arrangement. The directorate of the Federal Deposit Insurance Corporation, charged with the administration of the insurance was completed Sept. 7, when the President named the two appointive members, the third being the Comptroller of the Currency. By the middle of November the Insurance Corporation had under consideration applications from a large number of non-member banks and additional applications were coming in rapidly. Plans were announced in October by which the Reconstruction Finance Corporation would take up with member and applying non-member banks the question of the adequacy of their working capital, and would undertake, ordinarily by the purchase of preferred stock, to furnish additional capital to any banks which might need it, either to strengthen their capital structure as a preliminary to the insurance of their deposits or to enable them to meet the normal and local needs of their communities in connection with the national recovery program.

INTEREST ON BANK DEPOSITS

Other provisions of the Banking Act of 1933 prohibited any member bank, effective June 16, from paying interest on demand deposits, with certain specified exceptions, and required the Federal Reserve Board to limit by regulation from time to time the rate of interest which may be paid by member banks on time deposits. Acting under these provisions the Board issued on August 29, 1933, appropriate regulations, one of which included the requirement that no member bank shall pay interest, accruing after Oct. 31, 1933, on any time deposit or any part thereof at a rate in excess of 3 per cent per annum compounded semi-annually. A "Code of Fair Competition for Bankers," developed under the National Industrial Recovery Act of June 16, 1933, and approved by the President Oct. 3, includes a provision bringing all commercial banks, in respect to the payment of interest on deposits, under the Banking Act of 1933 and the rules and regulations of the Federal Reserve Board.

MISCELLANEOUS BANKING LEGISLATION

Reserve Note Collateral.—Other important provisions of monetary and banking legislation enacted in 1933 may be briefly enumerated. The power of the Federal Reserve Board to permit the use of United States Government securities as collateral against Federal Reserve notes, originally granted until March 3, 1933, was extended to March 3, 1934. The Federal Reserve banks were authorized (March 9, 1933) to issue Federal Reserve bank notes (a) against the security of direct obligations of the United States and (b) against the security of any notes, drafts, bills of exchange or bankers' acceptances acquired under the provisions of the Federal Reserve Act as amended. Bank notes issued against the security of United States Government obligations shall equal the face value thereof. Bank notes issued against the security of notes, drafts, bills of exchange and bankers' acceptances shall equal not more than 90 per cent of the estimated value of the security so deposited and may not be so issued after the President proclaims the termination of the emergency recognized by the Proclamation of March 6. The Federal Reserve banks began to issue Federal Reserve bank notes in the latter part of March, and by the middle of November about $195,000,000, all secured by United States Government obligations, were in circulation.

Legal Tender.—All coins and currencies of the United States were declared (May 12) to be legal tender. Provisions of all obligations "which purport to give the obligee a right to require payment in gold, . . . or in an amount of money measured thereby" were declared (June 5) to be against public policy and void. By certain provisions of the Banking Act of 1933, effective June 16, the Federal Reserve Board was given additional powers to curb the use of member bank credit for speculation.

Enlargement of Loaning Powers.—The authority of Reserve banks to make loans to individuals, partnerships, and corporations, which was granted under certain limitations by legislation of 1932, was enlarged during 1933 to authorize the Reserve banks to make loans to individuals, etc., under less severe limitations, but for periods not exceeding 90 days, on the security of direct obligations of the Government. There was an extension until March 3, 1934 (and for an additional year if the President shall so prescribe) of the authority of Reserve banks granted in 1932 to make loans to member banks — during the emergency and provided the applicant bank lacks sufficient eligible and acceptable assets to obtain adequate credit accommodation otherwise—on any security deemed satisfactory by the Reserve bank. Authority was also granted for a period expiring not later than March 24, 1934, to make loans upon certain conditions to non-member banks.

CHANGES IN FEDERAL RESERVE PERSONNEL

William H. Woodin, upon becoming Secretary of the Treasury on March 4, 1933, succeeded Ogden L. Mills as *ex officio* member and chairman of the Federal Reserve Board. J. F. T. O'Connor, of California, appointed Comptroller of the Currency on May 11, became an *ex officio* member of the Federal Reserve Board. Eugene Meyer tendered his resignation on March 24 as member and Governor of the Federal Reserve Board, which was accepted May 10, and on May 17 Mr. Meyer was succeeded by Eugene R. Black of Georgia. Mr. Black had held the office of Governor of the Federal Reserve Bank of Atlanta since January, 1928. On June 13, 1933, J. J. Thomas of Nebraska and M. S. Szymczak of Illinois were appointed to fill vacancies in the membership of the Federal Reserve Board.

On March 15, 1933, L. B. Williams, of Cleveland, succeeded George DeCamp, resigned, as Federal Reserve Agent and Chairman of the board of directors of the Federal Reserve Bank of Cleveland. On May 15, John N. Peyton, of St. Paul, became Federal Reserve Agent and Chairman of the board of directors of the Federal Reserve Bank of Minneapolis, to fill the vacancy created by the death of John R. Mitchell in December, 1932.

FOREIGN EXCHANGE

By Marcus Nadler

Professor, New York University

ABANDONMENT OF THE GOLD STANDARD

The outstanding development in the foreign exchange markets of the world during 1933 was the abandonment of the gold standard by the United States and the subsequent depreciation of the dollar. The movement of foreign exchange rates during this year may, therefore, be divided into two main periods: (1) the early part of the year when the dollar was approximately at par, and (2) the later period of dollar depreciation.

The year opened with the dollar firmly linked to the gold standard and the United States apparently well able to withstand any attacks on its currency from abroad. Then came the banking crisis and the domestic hoarding of gold on a large scale. Finally, on March 6 the President issued a proclamation ordering a bank holiday and prohibiting the export of gold. During the next six weeks the status of the gold standard was uncertain, but the dollar remained about at par. This was due to the fact that gold exports were soon permitted under license by the Treasury, and to the general feeling that the restrictions were temporary. The movement of principal foreign currencies in relation to the dollar during the first four months of 1933 is shown in the following table.

FOREIGN EXCHANGE RATES 1933

(Monthly Averages of noon buying rates for cable transfers in New York)

Country	Monetary Unit	Par of Exchange	January	February	March	April
Argentina	Peso	98.48	58.58	58.58	58.30	60.49
Austria	Schilling	14.07	13.97	13.99	14.01	14.07
Belgium	Belga	13.90	13.86	13.96	13.98	14.53
Brazil	Milreis	11.96	7.64	7.63	7.63	7.63
Canada	Dollar	100.00	87.46	83.51	83.52	84.72
Chile	Peso	12.17	6.03	6.03	6.03	6.03
Colombia	Peso	97.33	95.24	94.42	86.21	86.21
Czechoslovakia	Crown	2.96	2.96	2.96	2.97	3.12
Denmark	Krone	26.80	16.91	15.26	15.32	15.95
England	Pound	486.65	336.14	342.21	343.28	357.93
France	Franc	3.92	3.90	3.92	3.94	4.10
Germany	Reichsmark	23.82	23.77	23.83	23.85	24.39
Italy	Lira	5.26	5.12	5.12	5.14	5.37
Japan	Yen	49.85	20.74	20.79	21.26	22.09
Netherlands	Florin	40.20	40.18	40.27	40.36	41.95
Norway	Krone	26.80	17.27	17.53	17.59	18.32
Poland	Zloty	11.22	11.19	11.19	11.18	11.38
Spain	Peseta	19.30	8.18	8.24	8.44	8.88
Sweden	Krone	26.80	18.30	18.27	18.19	18.81
Switzerland	Franc	19.30	19.28	19.37	19.37	20.13

All doubt as to the dollar's relationship to gold was removed by the President's Executive Order of April 20 imposing an embargo on gold exports, except under license, "until further order." The dollar immediately dropped in relation to foreign currencies and has since fluctuated widely. The movement of the dollar subsequently went through three principal phases: (1) from April 20 to July 1, (2) from July 1 to October 22; and (3) from October 22 to ~~the~~ end of the year.

DEPRECIATION OF THE DOLLAR

After the initial sharp decline the dollar seemed to find its level at a discount of 15 to 20 per cent in relation to the gold standard currencies and continued in this range until the end of June. On July 1 the United States delegation to the World Economic Conference made public a statement by President Roosevelt rejecting the proposal for currency stabilization "in its present form." The dollar began to decline. Then came the President's sharp message of July 3 announcing his complete opposition to stabilization and his advocacy of the "commodity dollar." The franc and other gold standard currencies shot up to a premium of 44 per cent over the dollar, and the flight of capital from the United States began in earnest. For the next few months the dollar fluctuated widely as developments in the Government's monetary policy increased or allayed fears regarding the currency, although the general trend was downward.

DOLLAR UPTURN ON FOREIGN DEVELOPMENTS

The depreciation of the dollar was in accordance with the Administration's program for raising prices in this country and was, therefore, regarded with official approval. However, events soon forced the currency policy into a new phase. The political situation in Germany and in Central Europe began to arouse the fears of holders of short-term funds invested in Europe. On Oct. 14, Germany announced her withdrawal from the League of Nations and shortly thereafter the breakdown of the Disarmament Conference was admitted when it recessed for six weeks. To the nervousness created by these political developments was added the effect of the French budget difficulties which aroused apprehension as to the abandonment of the gold standard by France. At the same time events in the United States caused increased confidence in the dollar. On Oct. 11, it was announced that $1,900,000,000 of the Fourth Liberty Loan had been called for redemption or conversion, and this operation was accompanied by considerable ''sound money talk'' in official quarters. All of these circumstances brought about a reversal of the flight of capital and funds invested abroad began to be returned to this country. As a result the dollar rose rapidly in relation to foreign currencies as shown in the following table.

DAILY RATES FOR PRINCIPAL EUROPEAN CURRENCIES DURING OCTOBER 1933

(Noon buying rates for cable transfers in New York)

	Belgium (Belga)	England (Pound)	France (Franc)	Netherlands (Florin)	Switzerland (Franc)
Par.............	13.90	486.66	3.92	40.20	19.30
October 2......	21.63	478.45	6.07	62.57	30.04
3......	21.65	478.50	6.07	62.60	30.08
4......	21.55	476.20	6.05	62.41	29.97
5......	21.36	473.90	6.00	61.85	29.71
6......	21.44	474.25	6.02	62.08	29.83
7......	21.06	469.16	5.90	60.92	29.25
9......	21.08	468.19	5.92	61.07	29.31
10......	21.17	469.21	5.94	61.25	29.41
11......	20.89	465.26	5.86	60.42	29.04
13......	20.60	461.66	5.78	59.56	28.62
14......	20.02	455.69	5.61	57.85	27.78
16......	19.91	451.79	5.60	57.81	27.72
17......	20.21	455.19	5.68	58.55	28.12
18......	20.41	458.95	5.73	59.11	28.34
19......	19.92	453.58	5.59	57.61	27.66
20......	19.70	452.86	5.52	56.90	27.31
21......	19.59	451.79	5.50	56.71	27.22

U. S. GOLD BUYING POLICY

This upward movement of the dollar conflicted with the Administration's efforts to raise prices. On Oct. 22 the President of the United States made his now famous radio address in which he announced the adoption of a new policy of buying gold at home and abroad at prices above mint parity in order to bring about a decline in the gold value of the dollar and at the same time to cause a rise in prices. For a few days the United States government restricted its purchase of gold to the home market and the value of the dollar in terms of gold had a higher value abroad than in the United States. Thus, for example, on the basis of the official price for newly mined gold on Oct. 26 the dollar was worth 65.54 per cent of par, while in terms of French francs it was worth 66.91 per cent.

The Administration soon remedied this situation by extending its operations to include the purchase of gold both in London and Paris. This, in turn, further accelerated the flight of capital from the United States with the result that the dollar depreciated more rapidly than the price fixed by the Reconstruction Finance Corporation and the purchase of gold in the open market. The movement of the dollar after the announcement of the gold purchase policy may be seen from the following figures:

DAILY EXCHANGE RATE FOR PRINCIPAL EUROPEAN CURRENCIES AFTER OCTOBER 22, 1933

(Noon buying rates for cable transfers in New York)

	Belgium (Belga)	England (Pound)	France (Franc)	Netherlands (Florin)	Switzerland (Franc)
Par.............	13.90	486.66	3.92	40.20	19.30
October 23....	20.04	461.73	5.61	57.96	27.84
25....	20.97	475.59	5.87	60.61	29.10
27....	20.83	471.55	5.84	60.24	28.92
30....	21.19	478.92	5.94	61.32	29.42
November 1....	21.32	479.30	5.98	61.70	29.63
3....	21.54	484.30	6.03	62.17	29.87
6....	21.50	488.50	6.06	62.07	29.84
8....	21.95	494.89	6.16	63.55	30.51
10....	22.49	514.25	6.31	65.10	31.25
13....	22.35	514.12	6.27	64.71	31.06
15....	23.33	538.51	6.54	67.37	32.37
17....	22.87	529.07	6.41	66.10	31.74
20....	22.81	531.71	6.40	66.06	31.72
22....	23.00	541.33	6.45	66.53	32.01
24....	22.15	519.62	6.21	63.96	30.76
27....	21.50	509.46	6.03	62.25	29.92

GENERAL MOVEMENT OF EXCHANGE RATES

Aside from the rapid depreciation of the dollar the other currencies remained more or less stable. Of course, expressed in terms of the dollar the various currencies, both those on the gold standard and those off gold, appreciated rapidly. On the other hand, measured in terms of gold most of the currencies throughout this period remained more or less stable. During 1933 the currencies may be divided into two major groups: (1) those on the gold standard and (2) those off the gold standard. Currencies on the gold standard include the pure gold standard currencies such as France, Holland, Switzerland, Belgium and Poland, which have no foreign exchange control as well as those other countries which are legally on the gold standard but which have been able to maintain the stability of their exchange in relationship to gold only through rigid exchange control. To this group belong such countries as Germany, Austria, Hungary, Czechoslovakia, Latvia, and Lithuania.

COUNTRIES OFF THE GOLD STANDARD

Of the various currencies off the gold standard those which constitute the sterling bloc are by far the most important. Sterling bloc currencies include Great Britain, Australia, New Zealand, Canada, India, South Africa, the Scandinavian countries and Argentina. These currencies, while not actually pegged to the pound, have moved in close unison with the pound sterling. Although in relation to the dollar they have shown a substantial appreciation, yet in relation to gold the sterling bloc has remained more or less stable, being at a discount of 30 to 35 per cent in terms of gold, as indication that these currencies were under the close control of their respective governments which have endeavored to maintain the currencies at a more or less fixed rate irrespective of the movement of the dollar.

SOUTH AMERICAN CURRENCIES

Some of the South American currencies for a time after the abandonment of the gold standard by the United States remained pegged to the dollar, fluctuating in terms of gold. The most important of these were Colombia and Brazil. However, towards the end of 1933 the exchange regulations of Colombia were altered, and the Colombian dollar began to fluctuate independently of the United States currency. Similar measures were adopted in Argentina towards the end of November, and the Argentine peso declined sharply. The movement of the South American currencies in relation to the dollar may be seen from the following table:

SOUTH AMERICAN EXCHANGE RATES, 1933

(Monthly averages of noon buying rates for cable transfers in New York)

	Argentina (Gold Peso)	Brazil (Milreis)	Chile (Peso)	Colombia (Peso)	Uruguay (Peso)
Par	96.48	11.96	12.17	97.33	103.42
January	58.58	7.64	6.03	95.24	47.34
February	58.58	7.63	6.03	94.41	47.34
March	58.30	7.63	6.03	86.21	47.35
April	60.49	7.63	6.03	86.21	47.76
May	67.90	7.64	6.28	86.21	53.19
June	71.06	7.64	7.52	86.21	55.99
July	80.73	7.87	8.38	86.21	65.14
August	79.43	8.03	8.20	86.21	64.76
September	86.09	8.15	8.67	78.15	70.15
October	86.12	8.46	8.87	65.71	70.78

THE FAR EAST

Of the Far Eastern currencies, the Australian and New Zealand pound remained pegged to the pound sterling. The Chinese Yuan dollar on the other hand, fluctuated widely, depending primarily on the price of silver. As the price of silver rose in terms of exchange, exchange rates for the silver currencies showed a corresponding rise.

The Japanese yen experienced a spectacular decline after Japan abandoned the gold standard and at the beginning of the year was quoted at only about 40 per cent of its gold parity. As the dollar continued to depreciate, the Japanese yen rose in terms of the United States currency, but remained at about the same level in relation to the gold currencies. Exchange rates for the far eastern currencies are shown in the table on the following page (417).

THE CURRENCY OUTLOOK

During 1933 at the London Economic Conference efforts were made to bring about a return to more normal currency conditions. However, as is well known, the London Economic Conference failed, and currencies continued to follow a course independent of gold. Toward the end of the year the future course of exchange rates appeared to depend primarily upon (1) future actions of the United States Government and (2) the possible effect which the depreciation of the dollar may have on the French franc.

The future of the United States dollar at time of writing (December) is impossible to predict. In his radio address of Oct. 22, the President stated that the objective of the Administration is a rise in prices and that after this has been accomplished the purchasing power and the debt paying power of the dollar would be

FAR EAST EXCHANGE RATES, 1933

(Monthly averages of noon buying rates for cable transfers in New York)

	China (Yuan Dollar)	India (Rupee)	Japan (Yen)	Australia (Pound)	New Zealand (Pound)
Par	32.47	36.50	49.85	486.66	486.66
January	19.79	25.41	20.74	267.19	292.13
February	20.11	25.83	20.79	272.17	272.87
March	20.73	25.79	21.26	272.73	273.45
April	22.20	26.87	22.09	284.79	285.48
May	24.52	29.57	24.00	313.07	313.86
June	26.13	31.07	25.76	329.22	330.09
July	28.27	34.93	28.77	369.44	370.19
August	28.07	33.85	26.90	358.13	359.02
September	29.68	35.01	27.25	371.26	372.17
October	29.85	35.04	27.77	371.47	372.40

maintained at the same level. This, of course, means a managed currency. Whether a currency can be managed to this extent is a controversial question. It is hard to see how the external purchasing power of the dollar can have an appreciable effect on a country like the United States where most transactions are internal and where foreign trade plays only a comparatively small role in the economic life of the country.

It was feared in many circles toward the end of the year that France might also be forced to abandon the gold standard. It is clear, however, that the abandonment of the gold standard by France would be followed by similar action on the part of the other gold currency countries and gold would be practically eliminated as the common denominator of the various currencies. French statesmen and financial authorities have indicated clearly that they are not in favor of the abandonment of the gold standard first, because they do not believe that currency depreciation would materially help the national economy of France and, second, because the French franc had already been devalued to one-fifth of its pre-war value, thereby entailing substantial losses to the French public. The fear, however, that France may abandon the gold standard has caused considerable loss of gold by the Bank of France and from Sept. 1, 1933, to the end of November, the total loss of gold and of foreign exchange by the Bank of France amounted to 5,755,000,000 francs. In spite of this huge loss of gold and foreign exchange, the Bank of France still held a gold stock of 77,822,000,000 francs which represents a reserve of almost 80 per cent against notes in circulation and demand deposits. It is, therefore, regarded as improbable that the withdrawal of foreign funds from France could force the franc off the gold standard. Such a step could take place only if the French government were to adopt financial policies similar to those of the United States Government in order to help the internal situation.

At the close of the year the foreign exchange situation of the world was highly complicated. The number of currencies actually on the gold standard were few and most of the other countries had surrounded themselves with rigid foreign exchange restrictions which made the movement of funds from one country to another, if not impossible, at least very difficult. The future depends primarily upon the currency policy of the United States.

X. BUSINESS AND FINANCE

LIFE INSURANCE

By Wendell M. Strong

Associate Actuary, Mutual Life Insurance Company

GENERAL

The year 1933 has been a triumphant one for life insurance. Notwithstanding the most severe test that the institution has been compelled to meet since its inception in this country, it has come through with few failures and with the companies holding, and deservedly so, the confidence of the public even at the time of the greatest stress when banks were failing by wholesale. The insurance company failures have been less than a dozen in the last year, and before that scarcely any, such failures with one or two exceptions being very small companies, and the one moderately good-sized company not having been regarded as a strong company. Furthermore, the policyholders in these companies will presumably lose only a small part of their insurance.

As is inevitable in such a time, the downward tendency in the amount of new insurance written has continued. Terminations have increased, and the amount of policy loans outstanding probably has decreased, but this last is only because of fully loaned policies which the insured could not continue. Towards the end of the year there was an improvement showing in insurance written.

The total assets of the companies will remain practically stationary, showing either a slight increase or a slight decrease for the year. The total amount of insurance in force will considerably decrease.

Shortly following the national banking moratorium, a moratorium on the payment of cash surrenders and cash loans was declared in about half the states. This had by Dec. 1 been rescinded by nearly all states. Such a moratorium could hardly have been avoided after the general banking moratorium was declared.

NEW INSURANCE
(Association of Life Insurance Presidents)
(42 companies having 85% of insurance in force in all U. S. companies)
(Dollars in millions. First Eleven Months of Each Year)

	1931	1932	Per Cent Decrease	1933	Per Cent Decrease
Ordinary Insurance	$6,726	$5,473	18.6	$4,669	14.7
Industrial Insurance	2,535	2,322	8.4	2,127	8.4
Group Insurance	695	559	19.5	302	46.1
Total Insurance	$9,957	$8,355	16.1	$7,097	15.1

NEW BUSINESS

In 1932 the total amount of new life insurance of all kinds issued declined more than 15.7 per cent from 1931. In 1933 the decline from 1932 will probably be not far from the same percentage. The decrease for the first eleven months of 1933 over the corresponding period of 1932 in the total life insurance issued is 15.1 per cent. The distribution of the figures in the different kinds of life insurance, however, is notable. Ordinary life insurance issued decreased 14.7 per cent, Industrial insurance, the insurance of the small wage earner, decreased only 8.4 per cent, whereas group insurance, which is almost entirely insurance taken by employers for their employees decreased almost 50 per cent.

It seems like a great backward step to have a decrease for each year for several successive years in the amount of new business issued, with the result that the total amount issued in

1933 will be approximately two-thirds of what it was in 1929. If, however, this is considered in comparison with the decline in other kinds of business it seems small in amount. If we go further and consider it in its relation to the success of the institution of life insurance it dwindles into insignificance. The difference between life insurance and other kinds of business is that in life insurance a decrease in new business within reasonable limits goes only to the question of the size of the company and not to its success or failure in other respects. It has no perceptible effect on the question of security or of dividends to policyholders.

SURRENDERS AND LOANS

(*New York Insurance Report*)
(Companies Reporting to the State of New York)
(Dollars in millions)

Year	Number of Companies	Amount in Force (End of Year)	Amount of Policies Surrendered*	Amount of Policies Lapsed*	Paid for Surrendered Policies	Policy Loans (End of Year)
1932....	53	$71,478	$3,556	$3,292	$1,137	$3,188
1931....	52	74,636	2,264	2,934	718	2,798
1930....	52	73,568	1,710	2,792	517	2,337
1929....	49	69,886	1,370	2,264	375	1,992
1928....	48	64,367	1,134	2,055	307	1,663

* Includes group insurance but not industrial.

ASSETS AND INSURANCE IN FORCE

In assets, each successive year including 1932, has shown an increase. It is not known at this writing whether 1933 will show a small increase or a small decrease.

In 1929 the total life insurance in force in United States companies passed the one hundred billion mark. It increased for two years thereafter but last year and this it has been decreasing so that some time during 1933 it will have again passed the one hundred billion mark but in the opposite direction.

AMOUNT OF INSURANCE-ASSETS-INCOME-DISBURSEMENTS

Including Ordinary, Industrial and Group Business
(Dollars in millions. *Insurance Year Book*)
All United States Companies:

Year	Number of Companies	New Business	Amount in Force (End of Year)	Admitted Assets (End of Year)	Surplus* (End of Year)	Total Income	Total Disbursements
1932......	328	$14,514	$100,154	$20,754	$1,944	$4,653	$3,998
1931......	342	17,226	108,886	20,160	1,858	4,850	3,538
1930......	352	19,020	107,948	18,880	1,825	4,594	3,199
1929......	353	19,267	103,146	17,482	1,767	4,337	2,882
1928......	331	18,674	95,206	15,961	1,678	4,088	2,548
1927......	319	17,135	87,022	14,392	1,537	3,673	2,295

* Includes amount set apart for dividends to policyholders during following year.

THE MORATORIUM

The most startling event of the year was the declaration of a moratorium on the payment of cash surrender values and cash loans. This action was taken by the individual states, in number about one-half of the total but having much more than one-half of the population, and was to stop the enormous demand for cash from the companies. It followed the Federal banking moratorium, the first state taking action being New York on March 9. The moratorium has now been terminated in the majority of the states originally imposing it, and presumably will be terminated in the remaining ones in the not distant future. While it was in force it was being almost continually liberalized in most of the states. The restrictions while in force did not interfere with payments on death claims, matured endowments, and annuities or with loans to pay premiums to the company, but applied only to the option contained in the policy of demanding cash by way of surrender or loan.

The reasons that led to the moratorium lay in the banking situation. Prior to the Federal banking moratorium there had been a banking moratorium declared by several states and the banking situation in general had been growing increasingly worse. The result was that even before the Federal moratorium there was a demand on the life insurance companies for cash not only unprecedented but of a magnitude that was never thought of as possible in earlier years. The companies were called upon to do a considerable part of the banking business of the country, demands being thus made on life insurance companies which were entirely at variance with their real duties and which if allowed to go absolutely unchecked could have been met only by a company which had a large portion of its assets in cash or the equivalent thereof. Both the moratorium and the occasion for it have passed so that it is a matter of history, but one that has brought very vividly to those in life insurance questions connected with the unconditional right to cash loans and surrender values.

PAYMENTS TO POLICYHOLDERS-INTEREST RATE

Including Ordinary, Industrial, and Group Business

(*Insurance Year Book*)

(Dollars in millions)

	All United States Companies:						100 Companies:
Year	Number of Companies	Premiums Received	Dividends Paid	Death Losses Paid	Surrenders and Lapses	Total Payments to Policyholders	Rate of Interest on Mean Invested Funds
							Per Cent.
1932......	328	$3,504	$563	$905	$1,346	$3,087	5.08
1931......	342	3,661	585	915	861	2,607	5.23
1930......	352	3,524	554	856	614	2,247	5.31
1929......	353	3,350	513	808	448	1,962	5.33
1928......	331	3,146	466	706	369	1,699	5.30
1927......	319	2,874	418	614	325	1,500	5.32

INVESTMENTS

The same general situation that prevailed in 1932 has continued in 1933 with the result that the companies have had to foreclose many more mortgages than is usual and have had defaults in bonds. The losses, however, have been less than would have been anticipated at the beginning of the year. In regard to the property taken over on mortgage foreclosures it is not possible to speak in a general way. With the companies, however, that have been conservative in their mortgage loans the same experience that some companies had following 1893 may be repeated, that is, instead of losing they may make some profits on foreclosed properties. It may be anticipated that foreclosures will continue and that further bonds will default. There is, however, nothing threatening in this. At such a time it is expected and with many, if not most, of the companies, losses that have occurred thus far have been so small that they have been taken care of through reduction in dividends without having to touch the contingency reserve, which is a reserve held largely for the purpose of meeting such losses.

GENERAL FINANCIAL SITUATION

While the amount of money that the companies have had to invest has been small compared with normal years, there has nevertheless been some coming chiefly from the decrease in the amount of policy loans and from maturing obligations paid off. A much larger proportion of new investments than normal have been in Federal bonds, and most of the remaining in highest class securities. The result has been that these new investments bring a low rate of interest and this tends toward a decrease in the average rate of interest earned on funds. There was in the early days of the R.F.C. considerable newspaper publicity given to the borrowings of insurance companies, and the natural impression might have been that these were extensive as regards life insurance companies. On the contrary, they were insignificant. Near the end of November, 1933, they amounted to less than one-sixth of 1 per cent of the assets of the companies. It should, moreover, be recognized that it was a perfectly proper thing and one that was no reflection on a company for it to have borrowed from the R.F.C. on proper collateral to meet the unprecedented call for cash. One of the great difficulties has been the inability of mortgagors to meet their obligations with real estate practically unsaleable. The companies have been very liberal in dealing with this situation, trying to avoid foreclosures where they could do so without serious loss. This is particularly true of mortgages on farm properties.

CASH AND LOAN VALUES

The experience of the past year has led to the consideration of changes in regard to cash and loan values in future policies. The points under consideration are of two kinds, whether the cash and loan values should not be reduced and whether there should not be some change in the provisions of new contracts so that a policyholder would not have the unconditional right at any time to demand cash loan or cash surrender value.

The amounts of the cash values are now so nearly the full reserve that a surrender, particularly if made at a time of financial stringency, can be considered as causing a loss to the company; in other words, the fact that a policyholder withdraws is an injury to the continuing policyholder. The feeling is growing that the values should be reduced so that a surrender by one policyholder shall not injure those who continue their policies. The most important non-participating companies have already taken action reducing considerably the scale of cash values provided for in their policies. The question of changing the contracts to be issued so that there cannot be a legal right on the part of policyholders to demand surrender values as if they were bank deposits and thus in time of serious depression to subject the companies to the obligations of banks is a matter receiving consideration but is one more difficult to meet without very radical changes. In neither of these matters are the companies free agents since the statutes of various states require minimum surrender values and also make these values payable in cash either immediately or within a definite time. To make a complete reform many statutory changes would be necessary.

MORTALITY AND DISABILITY EXPERIENCE

The mortality experience will probably not differ greatly from the preceding year. The experiences of the companies on policies containing provision for disability benefits was increasingly bad up to and including the year 1932. The year 1933 will unquestionably be very bad. Whether it will be worse than 1932 will not be known until sometime in the following year. Because of the bad experience on this form of benefit some companies have ceased entirely the writing of it, and practically all those which continue have decreased the benefit and greatly increased the premium rates in proportion to the benefit furnished, with the result that comparatively little business of this form is now being written. Thus, while further losses from business written some years ago will continue these will gradually taper off and disappear.

DIVIDENDS

In 1932 there were some decreases in dividends on policies but many companies retained the scale of the preceding year. In 1933 a decrease in dividend scales from the preceding year has been the rule with but few exceptions. The year 1934 will again show decreases from 1933 in the case of many, if not most, companies, some companies which had retained their dividend scale without reduction up to 1934 having made severe cuts. It must be remembered that the dividends paid at about the end of the boom were for many, if for not most, companies higher than had been paid before since the liberal provisions of the modern policy contract had been adopted. In consequence the reductions that are now being made are reductions from the peak, and in many cases the resultant dividends are not greatly different from what they were a few years before the peak was reached.

ANNUITIES

Annuities purchased outright have shown a very great increase from 1932 which was in itself higher than any previous year had been. Also the election of optional settlements for policies that have become payable which settlements either leave the money at interest with the company or provide for an annuity, have increased noticeably even though the amount of insurance in force has decreased. The desire thus shown to provide for an income guaranteed by a life insurance company rather than to have the money invested shows a further turning to the companies as the institutions which can be most relied on for the future in such a time of doubt as the present. The premium rates for annuities purchased were slightly increased by most of the important companies. The reason for this was that the latest experience showed that the rates previously charged were hardly adequate for the present conditions as to interest rates and mortality among annuitants.

PREMIUM RATES FOR INSURANCE

For a number of years the larger of the non-participating companies had a scale of premium rates which was very low. In 1933 a moderate increase was made in these rates.

INDUSTRIAL INSURANCE

(*Insurance Year Book*)
(Dollars in millions)
ALL U. S. INDUSTRIAL COMPANIES

Year	Number of Companies	Number of Policies (in millions)	New Business	Amount in Force (End of Year)	Amount Terminated by Death	Amount Terminated by Surrender and Lapse	Total Amount Terminated
1932......	68	83	$4,793	$17,265	$154	$5,450	$5,811
1931......	68	88	4,847	18,274	159	4,412	4,781
1930......	69	89	4,860	18,287	158	4,101	4,490
1929......	68	89	3,738	17,902	....	......	......
1928......	65	86	4,505	16,686	....	......	......
1927......	58	82	4,464	15,548	....	......	......

INDUSTRIAL INSURANCE

In amount issued industrial insurance has not been as severely hit by the depression as either ordinary insurance or group insurance. The decline at the highest point was less, and there has come a greater recovery, this recovery having been such that for each month from August to November, December figures not being available, the industrial insurance written in 1933 exceeded that of the year before, and in the earlier parts of the year the decrease from the preceding year was much less. In industrial insurance the striking feature remains the amount terminated by surrender and lapse. In this respect the waste in industrial insurance is much greater, in proportion to the amount in force, than in ordinary insurance. (*See* table above.)

FRATERNAL INSURANCE

Fraternal insurance shows a decrease in 1932 from 1931, but of small proportion compared to the change from 1930 to 1931. 1933 figures are not yet available. It will be seen from the table that the statistics are incomplete.

FRATERNAL INSURANCE
(*Insurance Year Book*)
(Dollars in millions)
ALL U. S. FRATERNAL ORDERS SHOWING FIGURES

Year	Number of Orders	New Business	Amount in Force (End of Year)	Assets (End of Year)	Total Income	Total Disbursements	Net Amount Received from Members	Paid for Claims
1932....	226	$600	$7,123	$882	$212	$167	$164	$117
1931....	242	671	7,301	895	236	207	185	132
1930....	255	1,287	8,946	882	251	199	199	147
1929....	269	984	9,155	834	258	201	200	154
1928....	262	1,040	9,324	824	245	182	197	140
1927....	235	1,025	9,727	760	238	171	193	173

FIRE INSURANCE

BY EDWARD R. HARDY

SECRETARY-TREASURER, INSURANCE INSTITUTE OF AMERICA

STATISTICAL

Company Groupings.—It is desirable, in view of the changing conditions in 1933, to present first, before speaking of that phase of the matter, the statistics for the year 1932. There are four types of organizations which write fire insurance. These are stock fire and marine companies, stock automobile companies, mutual fire and automobile companies and reciprocal organizations. It is only by combining the statistics of these four groups that we can obtain anything like a complete statistical set-up of the business of fire insurance. The figures noted below are taken from the *Insurance Year Book* for 1933, published by the Spectator Company.

Receipts and Disbursements. — The fire premiums received by these four groups during 1932 amounted, dealing in millions only, to $583,000,000. All of these organizations are authorized to write other forms of property insurance, and the receipts from these sources were $214,000,000. The fire losses paid were $335,000,000. The losses paid on the other lines written amounted to $110,000,000. The total expenses of management were $377,000,000. There were also receipts from dividends, etc., which should be considered, as well as expenses other than the management expenses. Total receipts from all sources were $1,004,000,000 and the total disbursements were $1,057,000,000, thus showing a deficit on the total operations of all the organizations in these groups for the year.

EFFECTS OF THE DEPRESSION

It was felt that the bottom had been reached at the close of 1932 but that proved not to be the fact, and the year 1933 shows a decrease in premium income of approximately 15 per cent. The percentage decrease was higher than that in the first six months, but the income increased in the last six months and the decrease for the year is about as stated. The income of the fire insurance companies must vary almost in direct ratio with changes in the value of commodities including buildings and other structures. When a period of depression begins, the fire insurance companies have one advantage in that building insurance is usually written for three years and in many cases for five. It is not usual to have many cancellations of these policies which still have some time to run; hence the fire companies do not begin to feel the effects of the depression until about a year after it has started. If it continues, as the present one has done, the effects will be felt more sharply as time goes on. Thus, too, when a period of prosperity begins, the fire insurance companies are not the earliest corporations to feel the benefit of the upward trend, but only as policies come around for renewal, do their receipts commence to show a larger volume. There will be more insurance taken out, of course, to cover larger stocks, etc., but in the present case this development has been very gradual; hence a curve representing the upward trend will show an even rise, rather than a sharp upturn.

The year 1933 will show a 15 per cent reduction in premiums, other receipts holding more steadily perhaps, but it will also show a decrease of approximately the same amount in the losses. There has been launched a theory that the losses increase as the price of commodities falls and while it can be said of this, as of anything else, that one cause is not the whole cause, statistics do appear to bear out to an extent the fact that, not only in this but in other depressions, a decrease in commodity prices has meant an increase in losses. For some months the trend in commodity prices has been upward and the decrease in losses would seem to be evidence that as commodities increase in price, losses decrease. The question of moral hazard in fire insurance is a very subtle one and perhaps is not as important as those actively engaged in the business believe it to be.

CAPITAL ADJUSTMENTS AND INVESTMENTS

The capital structure has not undergone many changes, necessary adjustments having been made in the preceding years. It is evident that with the premium volume approximately one-half of that in the year 1929 the same amount of capital was not needed for the conduct of the business, nor could it be supported. Some companies were in a better position to make the capital adjustment than others. In most cases where they have continued in business they have done it by reducing the par value of their shares and thus have been able to maintain a higher rate of dividends than otherwise would have been possible.

The way in which the funds are invested is receiving careful consideration and stocks will not be viewed as favorably in the future as they have been in the past. Some extreme demands have been made that there be a strict limitation of the form of investment the companies can use. However, no active steps have been taken to restrict the type of investments other than those restrictions now in force. As a matter of fact, none will be needed, since the whole situation is being subjected to a most careful scrutiny.

MARINE INSURANCE

By Douglas F. Cox

President, Appleton & Cox, Inc.

PREMIUMS AND LOSS RATIO

As usual at the time of year when this review is written, it is impossible to deal with figures showing volume of premium and underwriting results for the current year, as the figures are not yet available. We can only deal with figures of the preceding year, in this case 1932.

The total premium in Ocean Marine

was $29,723,000, a decrease of $6,495,000 from 1931 or $18,532,000 as compared to 1929 when the total was $48,255,000. This is a falling off of 38% from the peak, which is not altogether surprising in view of present conditions in world trade. In Inland Marine, which includes land transportation and a large proportion of "personal property floater policies" covering jewelry, furs and similar articles, the total premium was $29,946,000, which is $12,483,000 less than the preceding year and $17,016,000 less than in 1928, a decrease of 36% from the peak.

The "Loss Ratio" in Ocean Marine for 1932 was 58.92 per cent which is not far from the average of recent years. In Inland Marine it was 62.28 per cent which is considerably higher than in recent years but is partially accounted for by the fact that the premiums were so much less, whereas the liability of the companies under policies in force was relatively high, as the policies in this class are generally written for the term of a year and consequently those written in the greater volume of 1931 were still in force during 1932, although diminishing as their expiration dates were reached throughout the year.

BUSINESS OF 1933

The Premium Factor. — During part of 1933 there has been a hopeful feeling that the long continued falling off was checked to some extent and it will be interesting to see how the totals for 1933, when they are published in the early part of 1934, compare with the figures of 1932. In Ocean Marine, it seems probable that the figures will show a still further decrease in the volume of premium in view of the continued difficulties standing in the way of trade between nations. However, there has been a little improvement in some particulars; for instance the carrying trade between the Atlantic and Pacific coasts was somewhat more brisk, at least during part of the year, there was a slight increase in activity on the Great Lakes as compared with the almost complete stagnation of 1932, and the values of some of the commodities carried over-seas were somewhat higher. In ocean-going hulls, there has been constant pressure from owners and brokers for reduction in insured values and in rates, owing to the necessity to economize which the owners are facing. The London underwriters who had maintained for some years a "Joint Hull Agreement" to obtain adequate rates, abandoned it in February under the stress of competition for business, in consequence of which considerable demoralization developed there. Rates fell to impossible levels and this situation was reflected in the American market, causing some reduction in rates and some loss of business to London. This was especially true in regard to Lake hulls. In the latter part of the year there was a revival of the agreement in London, but in modified form.

Loss Factors.—The season of West Indian hurricanes which lasts from July to October inclusive, developed this year a record number of such storms. No one storm, perhaps, was as destructive as some that have occurred in other years, but the aggregate damage done was wide-spread and must have affected both Hull and Cargo results. One peculiarity of the season was that two of the storms travelled far up the Atlantic coast instead of passing out to sea or spending themselves on the coasts of the Gulf States, as they usually do. Norfolk was visited twice with disastrous results, which is most unusual. Winter conditions developed in the St. Lawrence earlier than has been usual in recent years, resulting in a large number of strandings of vessels bound to and from Montreal at the end of the season, all of which will be costly to Marine Underwriters.

OVERLAPPING OF POWERS

The movement started two years ago under the auspices of the Department of Insurance of New York to terminate the controversy over the question of what forms of policy should be written by Marine companies under the powers granted to them by the State Insurance Laws and where the line should be drawn between their powers and those of Fire and Casualty companies, made considerable progress in 1933. The three classes of companies submitted to the Convention of Insurance Commissioners at Chicago in June a Definition of Marine Insurance for Nation-wide adoption by the Insurance Departments of the several States, and a proposed form of Agreement intended to be signed by all companies looking to the enforcement of the Definition and its proper interpretation. These were approved by the Convention and a number of states are adopting the definition; meanwhile signatures of Companies to the agreement are being obtained.

CASUALTY AND MISCELLANEOUS INSURANCE

By A. Duncan Reid

President, Globe Indemnity Company

GENERAL

The outlook for casualty and miscellaneous insurance at the beginning of the year 1933 was not bright. The experience of the past, particularly in the three years immediately preceding 1933, had given ample warning and practical demonstration of what to expect, both in premium volume production and loss experience. There seemed to be no relief in sight for either the investment or underwriting difficulties and he seemed, indeed, an optimist who found anything of comfort in the situation. Notwithstanding these dark prospects, the industry controlling casualty and miscellaneous insurance continued to work and plan and hope, and the fact that much which might have happened did not happen is in itself a tribute to the intelligence and courage of the men in command, and likewise, a splendid demonstration of the solidity and strength of casualty and miscellaneous insurance carriers as a whole. The days of the national bank moratorium are not soon to be forgotten by the average citizen, nor will he soon forget the marvelous demonstration of ability, efficiency and resourcefulness by the casualty and miscellaneous companies in meeting the necessity for continued service under those trying conditions.

ECONOMIC CONDITIONS

Failures.—It was not surprising that the strenuous times should take their toll in failures of a certain few carriers whose financial structure could no longer stand the tremendous strain of the times. Such failures, however, have not destroyed the truth that in the main the writers and carriers of casualty and miscellaneous insurance have remained solvent and strong and well equipped to continue so. Some of the failures which have come during the year have given actual demonstration of the senseless and dangerous practice of departing from sound principles in investment and underwriting practices.

Underwriting Loss. — Workmen's compensation insurance continued during the year to be the most difficult of all casualty forms written, and has perhaps been burdened with more of the by-products of the economic depression and deflation than any other class. All casualty companies reporting to the New York Insurance Department for the years 1926 to 1932 suffered an underwriting loss in this line of $105,240,000. Of this sum, $58,500,000 was a product of the years 1930-1931 and 1932. The complete figures for 1933 are not now available, but such experience as is at hand indicates that the experience of the first six months of 1933 produced an underwriting loss equal to that suffered for the entire year of 1932. It is evident, therefore, that 1933 will take its place as the peak year of loss.

WORKMEN'S COMPENSATION INSURANCE

Increase in Loss Payments.—Workmen's compensation loss payments continued to reflect not only actual and real industrial accident losses but, in addition, a burden of unemployment relief in the form of compensation awards. The liberal attitude assumed in the interpretation of the law and facts, rather than diminishing, has increased. The growing practice of permission to reopen cases long since closed has added a new and heavy burden to the companies making loss payments.

Remedial Measures.—During the year, companies and agents have coöperated in an effort to find a remedy for both the rate and the loss difficulties, but no great progress has been in the actual application of any of the suggestions made. Schedule rating has been eliminated in a number of states. Some rate increases have been granted, but the added factors in these rate increases were not sufficient to offset the rapidly reducing wage scale upon which premiums were produced and which resulted in many instances in a lower premium charge, even though the rates had been increased. In the meantime, the losses remained equally as high as theretofore.

The Outlook.—Few, if any, persons in the casualty and miscellaneous insurance industry believe that the state of mind or the conditions which are producing this heavy loss in workmen's compensation will show any substantial improvement or change for an indefinite period of time. Such improvement as may come will in all probability be wholly inadequate to counteract the general trend. Under these circumstances, most companies can not, and wise companies will not, continue to sustain this tremendous drain on resources, and it is to be expected, therefore, that radical changes may soon be produced.

FIDELITY AND INSURANCE LINES

The fidelity and surety bond lines continue to show some improvement, both in loss results and underwriting practices. The reaction and natural results of economic conditions and bank difficulties are still making themselves felt, with the result of losses higher than normal and greater difficulty in underwriting, but with the application of greater caution in underwriting and less carelessness in the acceptance of guaranties, the future seems to hold some hope.

ACCIDENT AND HEALTH INSURANCE

Accident and health insurance underwent a radical change in both rate and coverage conditions in 1932, and the general effect has been healthy. While there is apparently some improvement, it is still too early to judge whether or not a cure for the former heavy losses has been found. The stress of the times has reduced the premium income from this line for most companies in 1933, but there are many indications that the turn upward in volume is at hand.

BURGLARY AND ROBBERY INSURANCE

Burglary and robbery insurance lines have found favor with buyers of insurance during the year. An increase in certain forms of crime was to be expected under the economic conditions which have existed. Bank robberies in the smaller towns and cities have shown a considerable increase which has made necessary certain reformations in coverage and the establishment of conditions precedent to the issuance of insurance in these target centers. Bank failures and operation on a limited basis of usefulness have made burglary and robbery protection a real business necessity in many places, with the result that the buying public has become definitely sold on the usefulness of the lines. Improvement in the loss situation and an increase in premium volume may be expected.

PLATE GLASS INSURANCE

Plate glass insurance is still subject to difficulties in underwriting practices, brought about by the application by some carriers of the so-called ''fifty-fifty'' plan and cutrate competition. The rising tendency in the commodity market has been reflected in the price of glass which has had the effect already of increasing replacement costs and therefore raising loss ratios. The conditions, however, should place this line in a favorable position from the sales point of view and warrant an optimistic attitude.

AUTOMOBILE LIABILITY INSURANCE

Automobile liability insurance has improved in many jurisdictions. There is a continued increase in the number of claims per car insured and a definitely rising cost per claim, and still the general effect of the depression is present but has been offset somewhat by increased rates which have been granted by rating authorities in many states. Naturally, the increase in rate levels has produced a sales resistance which has had the effect of rendering more attractive the rates offered by companies which have chosen to ignore the loss shown in past underwriting results and the trend as shown by the experience on which companies have elected to proceed in the hope that the future would be better and brighter than the past. Responsibility laws now in effect in many states naturally produce some increase in premium writings, but largely among the less desirable drivers. The total of the 1933 results should show an improvement over the 1932 results.

GENERAL FINANCIAL SITUATION

Valuation.—The general financial situation continues most difficult. The basis of values to be used in producing annual financial statements by companies is a point uncertain in the absence of definite announcement by Insurance Department officials. There has been some refinancing by companies to take up the slack caused by the original crash in market values and also to provide for the necessary change in statement forms from the old plan of valuation permitted by insurance officials and called generally "convention valuation."

R. F. C. Aid.—During the year, the Fletcher Bill was passed by Congress, providing for help to be given to companies by the Reconstruction Finance Corporation, which permitted that Corporation to purchase preferred stock of insurance companies. At this writing, apparently only two such purchases have been approved.

Investments.—Certainly the use of investment profits to offset underwriting losses at the end of 1933 is definitely out. No improvement in the valuation of an investment portfolio can be expected to be either radical or rapid.

Rehabilitation Plans. — Something new in the plan of company rehabilitation has been used during the year, but the plans are still too immature to warrant final judgment. In general, the financial picture as shown in financial statements made at the end of the year will develop the fact that on the whole, casualty and miscellaneous companies will again demonstrate their stability and soundness.

CHRONOLOGY OF FINANCIAL EVENTS, 1933

(From *The New York Times*, January 2, 1934)

JANUARY

Jan. 2—Year begins with a decline in stocks.

Jan. 4—Treasury awards $75,090,000 91-day discount bills; average yield 0.20 per cent.

Jan. 5—Federal Reserve begins to sell government securities. Steel output 14 per cent of capacity, against 13 per cent at end of December. Ex-President Coolidge dies.

Jan. 6—Sharp recovery in stocks, after three-day decline.

Jan. 8—Farmers in Plymouth County, Iowa, prevent foreclosure sale on farm property by insurance company with threat of lynching.

Jan. 12—Steel output 15 per cent.

Jan. 17—$80,020,000 91-day discount bills awarded by Treasury, average yield of 0.18 per cent.

Jan. 18 — Renewed hoarding indicated by unseasonable expansion of money in circulation.

Jan. 19—Steel output 16 per cent.

Jan. 22—Treasury awards $277,516,000 5-year 2⅝ per cent notes at par. Subscriptions total $7,802,843,600.

Jan. 26—Steel output 17 per cent.

Jan. 30—Bankruptcy Bill, providing for railway reorganization without receivership, passed House Resolution 201 to 43.

Jan. 31—New York Life Insurance Company and other large companies suspended foreclosures in Iowa. United States Steel cuts quarterly preferred dividend from $1.75 to 50 cents a share; reports total deficit, after dividends, of $90,186,557 for 1932, against $49,165,485 for 1931.

FEBRUARY

Feb. 1—Bank failures and hoarding increase. Life insurance companies suspended foreclosures on all owner-occupied farms in United States and Canada, following farm strikes in Iowa. City of Detroit, defaults on its debt service, first major municipal default.

Feb. 2—Excited speculation in gold-mine shares at London culminates. Enormous trading and heavy realizing. Steel output 19 per cent.

Feb. 9—Steel output unchanged.

Feb. 10—United States Steel Corporation's unfilled orders declined 69,496 tons in January to 1,898,644

Feb. 14—Michigan declares eight-day bank holiday. Heavy drain of funds from New York to supply currency needs of Detroit sets in.

Feb. 15 — Federal Reserve reports $149,000,000 rise in money in circulation for past week, making total rise of $265,000,000 since Jan. 11.

Feb.16—Senate votes, 63 to 23, for repeal of prohibition amendment. Money firmer; Treasury sells $60,074,000 ninety-day discount bills at average rate of 0.55 per cent. Steel output 20 per cent.

Feb. 17—United States Steel Corporation offers 200,000 shares of its common stock to its employes at $27 a share.

Feb. 20 — House of representatives votes prohibition repeal, 289 to 121.

Feb. 21—Circulation up $134,000,000 in week. Federal Reserve buys $143,000,000 of bankers' bills and $25,000,000 of "governments."

Feb. 22 — Treasury 91-day discount bills awarded at an average yield of 0.99 per cent. Total of $100,613,000 allotted.

Feb. 23—Indiana declares bank holiday, followed in next three days by Maryland, Arkansas and Ohio. Steel output unchanged.

MARCH

March 1—Alabama, Kentucky, Nevada, Tennessee declared bank holidays. Money in circulation rose $732,000,000 in past week to $6,720,000,000, a new record. State of Arkansas fails to pay interest due on its highway and bridge bonds. Steel output falls to 17 per cent.

March 2— Arizona, California, Louisiana, Mississippi, Oklahoma and Oregon declare bank holidays. New York Reserve Bank advances discount rate from 2½ per cent to 3½ per cent.

March 3—Georgia, Idaho, New Mexico, Texas, Utah, Washington and Wisconsin declare bank holidays. New issue of Treasury 98-day discount bills, totaling $75,266,000, oversubscribed by only very small margin. Average price of but $98.90 shows high yield of 4.26 per cent. President Hoover signs Bankruptcy Law reforming conditions under which railroads may reorganize.

March 4 — Governor Lehman unexpectedly declares two-day bank holiday in New York State; all commodity and security markets closed. President Roosevelt inaugurated; at once decrees four-day bank moratorium throughout the United States, Colorado, Connecticut, Delaware, Florida, Illinois, Iowa, Kansas, Maine, Massachusetts, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Dakota, Vermont, West Virginia and Wyoming declare bank holidays. Reserve Banks observe State holidays, thus temporarily suspending gold payments. Total gold in circulation reaches peak of $1,389,000,000.

March 6—All gold payments and dealings in foreign exchange suspended for the period of the moratorium. New York Clearing House plans to issue scrip. Stock Exchange names special committee to deal with problems created by the closing. London Times declares that United States abandonment of gold standard "is so unlikely that it may almost be left out of account."

March 7—New York life insurance companies suspended granting of loans on policies.

March 8—Reserve Board calls for names of all gold hoarders. Money in circulation reaches record of $7,538,000,000. Steel output 15 per cent.

March 9—President extends bank moratorium pending notice. American markets remain closed. Wheat alternately rises and falls at Winnipeg, cotton advances at London. Congress, convened by President in extra session, enacts Emergency Banking Law placing discretionary embargo on gold exports; forbidding hoarding; calling for return of gold hoards under penalty of $10,000 fine and ten years' imprisonment; creating the office of Conservator for closed banks; giving national banks the right to issue preferred stock; authorizing issuance of Federal Reserve Bank notes, and making loans by Federal Reserve Banks available to nonmember banks and corporations.

March 10—President issues proclamation authorizing reopening of banks on Monday, March 13, under license. National banks and other Federal Reserve member banks to be licensed by Treasury; others by their respective supervising authorities. Plan for clearing house scrip abandoned.

March 12—Mid-March Treasury
nancing $469,131,000 4 per ce
certificates due Aug. 15, 1933, a
$473,373,500 4¼ per cent cert
cates due Dec. 15, 1933, allotted
par.

March 13—Banks in twelve Feder
Reserve cities licensed by Pre
dential proclamation to reope
thereby ending national morat
rium. Dollar reopens strong. Sp
cial committee of the Exchan
orders members to make deliver
of securities that were suspend
by the holiday; rescinds rulin
preventing members from payi
free credit balances to customer
authorizes trading "over the cou
ter" in United States Governme
securities. Rulings regarded as pr
paratory to reopening the E
change.

March 14—Banks in cities havi
recognized clearing houses
censed to reopen. No restrictio
placed on Stock Exchange tradin
excepting regulations preventi
hoarding of gold, shipment
capital out of the country, a
speculative operations against t
dollar.

March 15—Other banks licensed
reopen. Stock Exchange and ma
other markets reopen. Stocks sho
average gain of 15 per cent, co
pared with the final prices
March 3. Trading totals 3,065,0
shares. United States Governme
bonds rise 1 to 3 points, other bo
issues strong. Steel output under 1
per cent. Exchange on Paris sligh
ly above normal gold-export poin

March 16—New York Cotton E
change and Chicago Board
Trade reopen. Wheat futures ri
5 cents a bushel, maximum pe
mitted by the market's rules. Co
ton futures advance $2.60 to $3.1
a bale, or 8 per cent. Stocks an
bonds continue rise.

March 17—Domestic life insuran
companies forbidden to decla
dividends to policy holders
stockholders while the loan pr
hibitions are in force.

March 20—Economy bill enacte
granting President power to cu
salaries and regulate pensions.

March 22 — Total of $100,158,000 ninety-one-day discount bills allotted by Treasury at average yield of 1.72 per cent. Steel output 14 per cent.

March 23—Emergency banking bill passes Congress.

March 25—Italy withdraws $8,500,000 earmarked gold from Federal Reserve. Secretary Woodin announces reopening in ten days of 265 national banks, with deposits of $350,000,000. Globe & Rutgers Fire Insurance Company taken over by Insurance Department for rehabilitation; largest company yet affected.

March 28—All Federal salaries cut 15 per cent, effective April 15. President asks legislation for Federal supervision of investment securities in interstate commerce.

March 29—Money in circulation falls to $6,353,000,000, a decline of $1,185,000,000 in three weeks. Announced that, out of 18,000 banks in operation before crisis, about 12,800 have been licensed to reopen, representing about 90 per cent of country's bank deposits. Republic of Colombia declares moratorium on its foreign debt. Steel output 15 per cent.

APRIL

April 5—President Roosevelt issues executive order requiring holders of gold to return it to Federal Reserve Banks and providing for licensing of gold exports. Reserve system's weekly statement shows all the $575,000,000 loss of gold between January and March to have been recovered; $75,733,000 Treasury 91-day discounted bills allotted at average yield of 0.77 per cent. Steel output rises to 16½ per cent of capacity.

April 6—New York Reserve Bank rate reduced from 3½ per cent to 3.

April 12—Treasury awards $175,188,000 of 91-day bills at average yield of 0.49 per cent. Steel output 19½ per cent.

April 13—Dollar exchange declines fractionally. Franc at 3.99 cents, highest since 1926, against 3.91¾ parity. Sterling $3.47½, highest of 1933 to date. Shipment of $599,900 gold to Holland under Treasury license.

April 15—Dollar at 5 per cent discount in exchange market. Franc rises to 4.12 cents and sterling to $3.50 on uncertainty of United States gold policy, but react on news of further licensing of gold exports.

April 18—$4,000,000 gold shipped to France and further consignment of $3,000,000 announced.

April 19—President places embargo on all gold exports; action regarded as taking the dollar officially off the gold standard. Dollar falls to 13⅛ per cent discount in terms of franc. All gold-standard currencies reach record dollar price; franc at 4.50 cents, sterling at $3.85. $80,295,000 three months' discounted Treasury bills allotted at average yield of 0.51 per cent. Steel output 23 per cent above any previous 1933 price. Rapid rise in stocks, transactions 5,000,000 shares.

April 20—President issues executive order making gold embargo effective. Thomas inflation amendment to Farm Relief Bill introduced in Senate, authorizing the President to reduce gold content of the dollar, to issue up to $3,000,000,000 of United States notes (greenbacks), to arrange for credit expansion through direct purchase of government securities by Federal Reserve Banks from Treasury, and to accept silver in payment of war debts at 50 cents an ounce against which silver certificates are to be issued. Violent rise in stocks; day's trading 7,127,000 shares, largest of any day since May, 1930.

April 21—Dollar rallies. Sterling falls from $3.90 to $3.77.

April 25—Dollar at 11 per cent discount. Texas Corporation cuts oil to 10 cents in East Texas field, following raising of permissible Texas production.

April 26—United States Steel Corporation continues preferred stock dividend at rate of 50 cents quarterly; reports deficit of $16,730,271 for first quarter, compared with a deficit of $13,218,549 in 1932. General Motors Corporation reports net income of $6,870,007 for the first quarter, with $9,693,027 in 1932. Steel output 25 per cent.

April 27—$60,655,000 91-day discount bills, awarded by Treasury, an average yield of 0.49 per cent.

April 28—On applications totaling $1,202,043,500 for new 2⅞ per cent Treasury notes due April 15, 1936, award is made at par of $572,419,200. Of this $333,222,000 represents an addition to the public debt.

April 29—Dollar at 13¾ per cent discount.

April 30—Missouri Pacific Railroad files petition in bankruptcy; first action by a railroad under 1933 bankruptcy law. National Surety, the largest surety company, taken over for rehabilitation. New company, National Surety Corporation, assumes going business, while old company retains slow assets for gradual liquidation.

MAY

May 1—Pennsylvania Railroad begins door service in New York. Tire prices advanced 3½ to 7 per cent by leading manufacturers.

May 3—Brokers' loans report shows $11,530,607 rise in April, to $322,492,188. Steel output 29 per cent.

May 5—Dollar at 16⅝ per cent discount.

May 6—Country's output of electric power exceeds corresponding week of preceding year, for first time since 1929.

May 7—President on radio announces and defends repudiation of the "gold payment contract" contained in United States bonds. Takes the ground that there is not enough gold in the world to fulfill the contract. Defends refusal to protect foreign holders of such bonds against the heavy loss through depreciated exchange.

May 8—Very bad effect produced on public sentiment by President's repudiation speech.

May 10—Backlog of the Unit
States Steel Corporation increase
23,572 tons in April to 1,864,5
tons, first gain since October, 193
Steel output 31 per cent.

May 12—Farm Relief Bill become
law, with Thomas amendme
conferring inflationary powers o
President.

May 13—Ford Motor Company sel
its instalment sales division t
Commercial Investment Trust fo
$30,000,000, largest cash transaction since 1930. Weekly carloadings above previous year; firs
time since 1929.

May 15—Total of $75,442,000 91-da
discount bills, allotted by Treasury at average yield of 0.45 pe
cent.

May 16—Republic of Panama fail
to pay interest on its $11,000,00
5 per cent bonds held here. Shareholders of Chase Bank vote to
liquidate Chase Securities Corporation.

May 17—St. Louis-San Francisc
Railway, which had been in receivership since Nov. 1, 1932, file
a reorganization plan under the
1933 bankruptcy law. Steel outpu
35 per cent.

May 19—Dollar recovers to discount of 12¾ per cent.

May 23—Secretary Woodin announced arrangements have been made for Federal Reserve Banks to purchase government securities in open market, starting at $25,000,000 a week.

May 24—Federal Reserve begins open-market operations. Gold holdings of Federal Reserve Banks reach high record at $3,499,234,000. Steel output 38 per cent, highest since June, 1931.

May 25—Federal Reserve Bank of New York reduces rediscount rate from 3 to 2½ per cent.

May 27—Excited rise in stocks; Saturday business of 4,300,000 shares.

May 29—Dollar falls to 17¼ per cent discount; day's transactions in stocks, 6,900,000 shares. House of representatives passes by 283 to 57 resolution abrogating gold clause in public and private contracts.

May 30—Reserve Banks report that out of $1,840,000,000 currency withdrawn in bank moratorium panic, all but $170,000,000 has been returned.

May 31—Steel output 41 per cent.

JUNE

June 2—Dollar exchange firmer. General Motors Corporation authorizes 5 per cent increase in wages of 130,000 wage earners. Violent rise in stocks, gains of 1 to 10 points; day's sales 6,877,000 shares.

June 3—Senate passes gold clause abrogation resolution by 48 to 20.

June 5—President signs Congressional resolution abrogating the gold clause in all contracts, including United States Government bonds.

June 6—United States Steel Corporation adopts new code of employe relations for subsidiary, forming company unions under the National Recovery Act.

June 7—Day's sales of stocks 6,600,000 shares. Tire prices advanced 8 per cent. Steel output 44 per cent. Rock Island files for reorganization under Bankruptcy Law.

June 8—Dollar falls to 18⅞ per cent discount.

June 9—Railroad bill passed. U. S. Senate defeats inflation amendment to bill for financing public works.

June 12—World Economic Conference opens in London. Dollar at 19.64 per cent discount.

June 13—Stock Exchange seat sold at $235,000. Day's sales of stocks 6,300,000 shares; prices down on heavy realizing. Industrial Recovery Bill passes Senate, 46 to 39.

June 14—Five large rubber companies order increase of 10 per cent in pay of 35,000 workers. Stock Exchange seat sells at $250,000; stocks decline. Steel output 47 per cent. British Government pays $10,000,000 in silver on war debt instalment.

June 15—Treasury announces total subscription of $5,659,599,000 for $500,000,000 2⅞ per cent notes due June 15, 1938, and $400,000,000 ¾ per cent certificates due March 15, 1934. Allotments on the notes, $623,441,800 and on the certificates, $460,099,000. Gold clause omitted from these issues. Railroads serve notice on unions of new cut of 12½ per cent in wages. France defaults for second time on war debt instalment.

June 16—Railroad bill becomes law. Congress adjourns. Court of Appeals rules Pennsylvania Railroad and Pennsylvania Company may retain control in Wabash and Lehigh Valley Railroads.

June 17—Banking Act of 1933 is signed by President. Member banks of Federal Reserve cease paying interest on demand deposits. Withdrawals of deposits by out-of-town banks and corporations begin. Eastman appointed coördinator under Railway Law.

June 19—Treasury awards $100,361,000 ninety-one-day discount bills at average yield of 0.24 per cent.

June 20—J. B. Eastman, Federal coordinator, announces suspension of railroad wage cut for eight months.

June 21—New York City reporting member banks show loss of $350,000,000 demand deposits in week. Steel output 50 per cent.

June 22—Dollar at 20⅜ per cent discount. Eastman, in his first order, divided railroads into Eastern, Western and Southern groups for coordinating purposes. Dollar falls to 20.43 per cent discount.

June 24—Ford Motor Company surplus was cut $74,861,644 in 1932, according to report filed with the State of Massachusetts.

June 26—$75,697,000 ninety-one-day discount bills alloted by Treasury at average yield of 0.27 per cent. Stocks rise to new high levels for year.

June 28—Dollar at 23¾ per cent discount. State of New York awards $26,595,000 of new long-term bonds to Chase National Bank and associates at record low interest cost of 2.936 per cent. Dollar falls to 20.43 per cent discount. Steel output 53 per cent. Stock market reactionary.

June 29 — Eastern Railroad presidents appoint coordinating committee under the emergency railroad law and also appoint general committee which would work independently of the law and continue the activities of the Eastern presidents' committee for elimination of competitive wastes. Dollar rallies to 21.2 per cent discount.

June 30—Treasury allots $100,010,000 ninety-one-day discount bills at average discount of 0.28 per cent.

JULY

July 1 — Treasury states deficit for fiscal year 1933 as $1,786,000,000, against $2,880,000,000 in 1932. Dollar at 22⅓ per cent discount.

July 3 — President Roosevelt sends cable to World Economic Conference, shattering plans for stabilizing international exchange. Cable asserts further consideration of plan would be "a catastrophe amounting to world tragedy," and refers to existing currency ideas as "old fetishes of so-called international bankers." Conference bewildered; American delegates protest. Stock and commodity prices rise sharply.

July 5—Steel output 56 per cent.

July 7 — French Government and municipal dollar bonds rise rapidly on news that interest will be paid at gold parity of exchange.

July 9—President signs textile code, first major pact.

July 10—Chamberlain tells Commons dollar will rise in Autumn. Pittman's silver resolution and world wheat pact pressed.

July 11—Dollar rises on Chamberlain's prediction; pound falls 14¼ cents, franc reacts sharply. Railroad brotherhoods accept extension of 10 per cent wage reduction.

July 12—Steel output 50 per cent, highest of year. Electrical code filed at capital; thirty-six-hour week set. 104 per cent increase in automobile production over June 1932 reported by Automobile Chamber of Commerce. Germany announces plan to pay interest on dollar bonds 50 per cent in cash, balance in scrip; Dawes an Young Plan loans excepted.

July 13—Stocks rise sharply in 7 449,000-share day; bonds also ac tive as dollar drops again.

July 14—Dollar falls to 30 per cen discount. President considers orde fixing wages and hours, pendin code agreements. J. B. Eastman Federal Coordinator, tells execu tives of railroads to reduce thei salaries.

July 15—Steel code grants pay rise of 15 per cent to skilled workers Pay rise for 100,000 in big stee plants.

July 17—Grain prices up, in rush o buying.

July 18—Stocks touch high point of 1933 in a day of excited rise; averages 98.05 against 46.85 on March 2. December wheat reaches highest of the year, selling at $1.24 per bushel, against 68⅛c. in April. Spot cotton at year's highest, 11.75 cents a pound, against 5.90 on Feb. 1.

July 19 — Very violent break in stocks; averages fall nearly 5 points, recovering part. December wheat goes to $1.08½, against previous day's $1.24. Dollar at 31⅝ per cent depreciation. Sterling touches gold parity of $4.86½ in terms of dollar. British government refuses to follow French and Dutch payment of gold equivalent on coupons of American-held bonds, but offers to exchange United Kingdom 5½s for new domestic loan at £260 per £1,000, or at $3.84⅝ for sterling, against ruling market rate of $4.86½. U. K. bonds rise to 124⅞ in New York, against year's earlier high level of 112½. Steel output 58 per cent, first weekly downturn since March.

July 20—Break in stocks continues; day's sales 8,118,000 shares; averages down 6 points for day. December wheat falls to 93¾ cents, cotton down $4 per bale. Dollar depreciation 28¼ per cent.

July 21—Stocks fall again; averages reach lowest of Summer reaction, falling for day nearly 10 points, and 21½ points below July 18. Individual declines range from 2 to

22 points. Day's transactions 9,573,000 shares, largest of any day since Oct. 30, 1929, and fourth largest on record. Chicago grain market suspends business for two days.

July 22—Grain market closed; limit of 5 cents officially fixed for daily grain fluctuation. Labor Bureau's weekly index number of commodity prices show first decline since March.

July 24—Stock Exchange opens only at noon, instead of 10 A. M. Stocks rise 1 to 10 points. Wheat market steady.

July 26 — Stock Exchange trading day cut to three hours (11 A. M. to 2 P. M.) until further notice. Recovery in stocks continues. Wheat recovers to $1.03 at Chicago. United States Steel reports deficit of $10,428,772 for second quarter, against deficit of $26,757,092 in 1932. General Motors reports net income of $41,198,169 in same quarter against $5,326,377 in 1932. Steel output 57 per cent.

July 27 — London economic parley ends; Roosevelt note denies it is a failure. Pound drops to $4.50½; dollar rallies violently. E. A. Crawford, of E. A. Crawford & Co., suspended from Commodity Exchange for failure to meet obligations; violence on previous crash in wheat being ascribed to collapse in his speculations. Cotton up $1.30 to $1.50 a bale in active trading. Tire manufacturers raise prices 10 per cent; third increase since April.

July 28—Pennsylvania Railroad repays all of $27,500,000 R. F. C. loan, first big railroad to clear itself of debt to government.

July 29—Labor Bureau's weekly index number of commodity prices shows first decline since March.

July 31 — Stock Exchange resumes regular trading hours.

AUGUST

Aug. 1—Dollar rallies; depreciation 24.5 per cent discount.

Aug. 2—Dollar falls to 26.8 per cent discount. New York State Superintendent of Insurance takes over six title and mortgage companies and releases twenty-seven from restrictions. Stock Exchange adopts drastic rules to curb speculation.

Aug. 3—Stock Exchange establishes higher margins to check speculation; asks regular reports from its members on pool operations. All clearing-house banks and member banks of American Bankers Association adopt temporary NRA code. Subscriptions for $850,000,000 Aug. 15 Treasury financing total $4,802,000,000; allotments total $1,190,000,000. Steel output 57 per cent, unchanged.

Aug. 4—Gas bombs close Stock Exchange at noon.

Aug. 9 — Coordinator Eastman directs railroad presidents to delay economies which might impede recovery program.

Aug. 10—Steel output unchanged at 57 per cent.

Aug. 11—State takes over Lawyers Title and Guaranty Company and its affiliate, the Lawyers Westchester Mortgage and Title Company. Report on short interest on the Stock Exchange shows reduction of 445,024 shares in July to 972,613 shares, smallest amount since figures were first published in 1931.

Aug. 13—Codes for electric, manufactured gas and natural gas companies approved by NRA.

Aug. 15 — Chicago lifts grain "pegs"; Winnipeg limits prices.

Aug. 17 — Stock Exchange brokers start movement to organize an Exchange in New Jersey to avoid proposed New York City emergency taxes of 5 per cent on stock brokers' income. Commerce Commission approves merger of eleven subsidiaries with Chicago, Rock Island & Pacific Railway. Labor executives ask President Roosevelt to put railroads under NRA, but Presidents holds existing laws are adequate. Steel output falls to 53 per cent.

Aug. 18—Dollar falls to 27.38 per cent discount.

Aug. 22 — Federal program to buy up pork surplus begins. Report on world wheat carry-over as of July 1 shows largest total ever reached; 950,000,000 bushels, against 770,000,000 year before.

Aug. 24—Steel output down to 50 per cent.

Aug. 25—Dollar falls to 31.26 per cent discount, with franc at 5.70 and sterling at $4.66½.

Aug. 26—Eastern railroads' coordinating committee prepares formula for reduction of higher salaries.

Aug. 27—General Hugh S. Johnson announces he will write oil code himself when factions in the industry fail to agree.

Aug. 28—Government buys 167,000 pigs in day; hog market unsettled. Wallace decrees 15 per cent cut in wheat under world accord.

Aug. 29 — President Roosevelt by executive order authorizes receipt of newly mined domestic gold by Treasury, to be sold through Federal Reserve, at "the best prices obtainable in the free gold markets of the world," to foreign purchasers of the domestic arts and industries. Anti-gold hoarding ordinance made more severe.

Aug. 30 — Stock Exchange grants extra day for deliveries in trading. Argentina signs world agreement for wheat restriction. Dollar rises to 70.65 per cent gold value as rule on gold is awaited.

Aug. 31—Kreuger & Toll debenture holders receive part payment. New York City pays $8,726,000 interest due, despite failure to obtain new loan.

SEPTEMBER

Sept. 1—Treasury allots $75,039,000 ninety-one-day bills at 0.12 per cent annual discount basis. Austria decides to pay arrears of bond interest. Price for gold in British currency sets high record in London, at 130s. 8½d. a fine ounce. Dollar at 30.22 per cent discount.

Sept. 2 — Gold price in London at new high record of 131s. 3d.

Sept. 3 — President Atterbury of Pennsylvania Railroad approves NRA experiment and praises Roosevelt for attempting "something experimental" when "many of our old formulas had ceased to work."

Sept. 5 — Jesse Jones, chairman o RFC, warns American Banker Association of possible governmen control of banking; demands a banks sell preferred stock to RFC

Sept. 6 — Bankers Association national convention asks delay i applying requirements for deposi insurance, pledges support to administration's "recovery campaign" and resolves that "thi nation cannot indefinitely continu to carry on its business affair with a monetary system in so unsettled a state as it is at present.'

Steel output 45 per cent.

Sept. 7—Controller of the Currency tells bankers' convention deposit guarantee will be rapidly put into effect. Bankers draw up permanent code under NRA.

Sept. 8—First sale of newly mined gold through Federal Reserve announced by Treasury; price $29.62 per ounce, against statutory Mint price of $20.67. Grain trade codes adopted by Chicago Board of Trade. Restriction of loans on life insurance policies ends.

Sept. 11—Treasury's daily gold price reduced to $29.10 an ounce. Dollar rallies to 28.18 per cent discount. Sharp rise in stocks.

Sept. 12—New York City Board of Estimate votes municipal tax of 4 cents per share additional on stock transfers; also 5 per cent tax on individual gross profits of stock brokers, one-fourth of 1 per cent on gross income of public utilities from New York City customers and one-fourth of 1 per cent on investments of all New York City savings banks and insurance companies.

Sept. 13—First shipment abroad of newly mined gold under executive order; 4,208 ounces, valued at $124,052. Treasury's gold price $29.48 per ounce. Cotton rises sharply. Steel output falls to 41 per cent.

Sept. 14—Dollar falls to 31.52 per cent discount.

Sept. 15—Plans aggressively pushed for transferring part of New York Stock Exchange business to Newark, N. J., to escape proposed drastic New York City taxation. Dollar falls to 32½ per cent discount.

Sept. 17—RFC grants $150,000,000 to refinance farm mortgages.

Sept. 18—"Cotton committee" at Washington, with approval of Southern Senators, adopts memorial to Roosevelt favoring increased issue of United States notes, praising Civil War currency inflation, and urging establishment of minimum price of 20 cents per pound for cotton. Asserts that cotton price conditions are "worse today than have existed during this entire depression." Day's New Orleans spot price for cotton 9⅞ cents, against 5¾ cents on Feb. 4. Dollar falls to 35.19 per cent discount.

Sept. 19—Wave of apprehension sweeps over country that Roosevelt will surrender to currency-inflationists.

Sept. 20—Steel output up to 43 per cent. Treasury's daily gold price advances to $32.28 an ounce, the year's highest to date.

Sept. 21—Stocks break. Averages down 5½ points, following 3-point fall day before.

Sept. 22—President Roosevelt offers to farmers government loans on cotton at 10 cents per pound. Dollar rises to 34.95 per cent discount.

Sept. 23—Roosevelt consents to see "cotton committee," but bars all discussion of currency inflation.

Sept. 25—New low discount price of 0.10 per cent named on issue of $75,082,000 91-day Treasury bills.

Sept. 26—F. B. Campbell enters suit in U. S. District Court to test constitutionality of President's executive order requiring surrender of private holdings of gold.

Sept. 27—Stock Exchange decides to stay in New York, as city drops plan for tax on stock-brokers' incomes. City-wide banking group agrees to finance New York City. Steel output 41 per cent.

Sept. 28—Dollar rises to 33.32 per cent discount.

Sept. 30—Dollar closes at 34.62 per cents discount.

OCTOBER

Oct. 1—NRA announces beginning of a "Buy Now" compaign. Emergency freight surcharges, established on Jan. 2, 1932, ended.

Oct. 2—Currency inflation attacked in speech to American Federation of Labor's annual convention. Dollar 35.62 per cent discount.

Oct. 3—Neville Chamberlain at Lord Mayor's dinner predicts return to gold. British Labor party declares against gold. Clarence Dillon testifies before Senate committee to market operations during 1929 of investment trusts and bankers in control of them.

Oct. 4—Stocks advance; average up 4½ points. Steel output 42 per cent. Eastman asks steel companies for bids on rails; lists forty-seven railroads as ready to buy rails under suitable conditions.

Oct. 5—Dollar rallies to 34.50 per cent discount.

Oct. 6—Western Railway Association cuts passenger fares from 3.6 cents per mile to 3 cents, and 2½ cents for round trip; eliminates Pullman surcharge.

Oct. 7—Dollar rallies to 33.63 per cent discount. Sterling falls to $4.68¾.

Oct. 8—$75,020,000 of 91-day Treasury bills allotted at average discount of 0.12 per cent.

Oct. 11—Treasury calls $1,900,000,000 of Fourth Liberty loan for redemption next April; offers in exchange twelve-year bonds, bearing 4¼ per cent interest for one year and 3¼ thereafter. Steel output higher at 44. Stock Exchange segregates odd-lot and round-lot brokers, by prohibiting odd-lot specialists from dealing in 100-share lots.

Oct. 13—Dollar rallies to 30.83 per cent discount. Sterling, $4.53½.

Oct. 14—Wheat breaks 5 cents, following previous day's decline of 3½.

Oct. 16—Dollar rallies to 28.50 per cent discount. Sterling, $4.48½. Secretary Ickes, Oil Administrator, orders price-fixing under NRA code.

Oct. 17—Agricultural Administration announces benefit payments to farmers reducing corn acreage 20 per cent and hog production 20 per cent. Savings Bank Association disapproves application of Bank Deposit Insurance Law to savings institutions. December wheat 67½ cents, lowest of Autumn.

Oct. 18—Federal Reserve begins to curtail open-market operations. Purchases of "governments" reduced to $31,000,000, after eight weeks of purchases at $35,000,000 a week. Steel output lower at 39 per cent.

Oct. 19—Stock market falls; averages down 3¼ points, after 3½-point decline preceding day.

Oct. 20 — French Government announces redemption of $3,000,000 external 7 per cents at full gold value. Wheat very strong; December 84¼ cents, or 16¾ cents above Oct. 17. Dollar rallies to 27.98 per cent discount.

Oct. 21—Roosevelt in radio broadcast announced government's purpose of buying or selling gold in world market; declares that government expects "to move toward a managed currency," and will "seek to establish and maintain a dollar which will not change its purchasing and debt-paying power during the succeeding generation." Steel companies offer to cut rail price from $40 per ton to $35.

Oct. 24—Stock market averages rise 2¾ points, following previous day's rise of 5.

Oct. 25—RFC gold buying under new Executive order begins. Price of $31.36 per ounce announced for the day, against $29.80 price of previous day under preceding Executive order. Home and foreign economists and financiers publicly express inability to understand President's ideas. Government's price fixed 65.91 cents for dollar's gold value, against 67.03 fixed by foreign exchange markets. Steel Institute estimates steel output at 31.8 per cent. Day's stock market averages rise 1⅞ points.

Oct. 26—Stock market averages decline 1¼ point. RFC gold price $31.54. Dollar falls to 33.54 per cent discount. General Motors Corporation reports a net profit of $33,341,618 for third quarter, against a net loss of $4,424,229 previous year.

Oct. 27—RFC price for gold raised to $31.54 per ounce. Dollar's equivalent value 65.54 cents; world price on exchange market 66.63.

Oct. 28 — Government's gold price raised to $31.76, making valuation of dollar 64.96 cents, against 67.78 exchange market valuation. Increasing bewilderment on foreign markets; talk of "retaliation" by England and of danger to French money standard.

Oct. 29 — President Roosevelt announces that plans have been laid for purchasing of gold abroad by RFC.

Oct. 30—RFC gold price $31.96, reducing dollar's valuation to 64.67 cents; world valuation 66.80. Great confusion in markets. Stock Exchange average falls 3¾ points. Sterling rises 8 cents and reacts 4½. December wheat 90½ cents. New York City gets $25,000,000 loan to meet payrolls. President Roosevelt fixes compromise price of $36.375 for rails under Eastman plan.

Oct. 31—Government's price of gold raised to $32.12, making dollar valuation 64.35 cents, against 66.06 cents, day's world-market price. Bond market weak, sterling rises again. Stock market ends month with averages 2⅞ points below Oct. 24, day before new gold-buying program was introduced. New York City and bankers sign four-year financing agreement.

NOVEMBER

Nov. 1 — Government price of gold raised to $32.26 per ounce, valuing dollar at 64.07 cents; day's world price 64.97 cents. A. H. Wiggin admits to Senate committee short sales of Chase Bank stock during 1929 panic by affiliated "pools." United States Steel Corporation reports loss of $2,717,014, after all charges, for third quarter; the best quarterly report in more than two years. In the corresponding quarter of 1932 the corporation reported a net loss of $20,871,709. Steel output down to 26.1 per cent.

Nov. 2—Government raises price for gold to $32.36. Dollar, 63.87 cents. Twenty-six Western economic teachers oppose "managed currency" and demand return to gold. Dutch East Indies announces redemption of $2,480,000 of its dollar bonds on Jan. 1, 1934, in terms of the gold dollar.

Nov. 3—RFC gold price raised to $32.57, making dollar 63.30 cents. World price 64.54 cents. New York Chamber of Commerce votes resolution urging administration to "clearly and unequivocally announce that it will not adopt an automatic commodity dollar or a managed commodity dollar, but will adopt a policy directed toward the return to a gold standard."

Nov. 4—Government gold price raised to $32.67. Roosevelt rejects agricultural price-fixing plan of Western State Governors. NRA code for Stock Exchange brokers is approved by President Roosevelt.

Nov. 6—Washington gold price raised to $32.84, or 4¾ per cent above price when new policy began on Oct. 25. Official valuation of dollar 1⅝ cents above world price. Violent advance in sterling from $4.86¼ to $4.91¼, highest price since 1914.

Nov. 7—Great Britain agrees to $7,500,000 "token payment" Dec. 15 on war debt to United States.

Nov. 8—Government gold price raised to $33.05; dollar valuation down to 62.54 cents; world price 63.60 cents. Treasury announces cash subscriptions to new twelve-year Treasury loan, of which $500,000,000 was offered Oct. 15 for cash, totaled $1,989,024,000. Allotted $500,421,650. Steel output 25.2 per cent.

Nov. 9—Washington gold price $33.15. Great demoralization on international market; home bonds weak under heavy selling. Sterling goes to $5.15.

Nov. 10—Government gold price $33.20.

Nov. 11—Gold price raised to $33.32.

Nov. 12—Chicago business men organize association against administration's money experiments; demand "prompt return to a gold standard." Central bank for Canada is recommended by Royal Commission on Banking and Currency in Canada.

Nov. 13—Gold price advanced to $33.45 per ounce, or 46 cents above world price. Dollar, 61.79 cents, against world price of 62.09 cents. Code of fair competition for Stock Exchange firms becomes effective. Treasury awards $75,295,000 of ninety-one-day bills at average discount of 0.4 per cent.

Nov. 14—Gold price fixed at $33.56, depressing official gold price of dollar to 61.59 cents; world price 60.97 cents. Sterling rises to $5.33¼. Home financial markets excited and weak; new conference at White House.

Nov. 15—Government gold price unchanged for first time under new program. Assistant Treasury Secretary Acheson resigns because of disagreement with government's money policy. Morgenthau, Jr., replaces him. J. P. Morgan & Co. announce that American Securities Investing Corporation, to so-called "bond pool" organized in June, 1932, is being liquidated. Steel output 26 per cent.

Nov. 16—Gold price unchanged, but sterling rises to $5.52, highest on record except for four days in 1914, and comparing with $4.77⅜ Oct. 31. Reacts later to $5.28¼. Stocks rise, but bonds fall; sharp break in United States Government bonds causes uneasiness.

Judge Woolsey, in United States District Court, decides that law requiring surrender of private gold holdings is Constitutional, but declares President's decree of requisition irregular, because statute authorized only Secretary of the Treasury.

Nov. 17—Gold price unchanged; sterling down to $5.15⅛. Cleveland Chamber of Commerce declares against unstable money. Foreign experts estimate flight of United States capital to England in three months $375,000,000, to all Europe $1,000,000,000. United States recognizes Russia.

Nov. 18—Washington gold price unchanged for fourth successive day. Roosevelt in speech attacks "doubting Thomases" and "modern Tories." London Economist declares United States dollar 20 per cent undervalued.

Nov. 20—Government gold price put up again to $33.66, making dollar valuation 61.40 cents, against world price of 61.02. Sterling runs up to $5.33¼. United States Chamber of Commerce by resolution urges "immediate announcement of intention of an early return to a gold basis, with the complete avoidance of monetary experimentation." New York City sells $70,000,000 relief 4 per cent bonds, due 1934 to 1943, to city-wide banking group at par, under four-year financing plan.

Nov. 21—Further advance in Washington gold price to $33.76; sterling $5.44. Professor Sprague, official adviser of Treasury, resigns because of "fundamental disagreement with monetary policies which have recently been adopted." Warns Roosevelt of grave dangers in his experiments. German Government's committee declares against nationalization of banks. Roosevelt on radio describes "our own fight for things we know to be right." Federal Reserve Advisory Council appeals for return to gold; doubts any lasting business improvement while value of currency unit is uncertain. Sale of 50,000 shares of Lehigh Valley Railroad stock in market announced by New York Central.

Nov. 22—Washington gold price raised to $33.76. United States Government declared to be supporting government bonds. Steel output 27½ per cent.

Nov. 23—Gold price unchanged. Switzerland offers to exchange new internal Swiss franc 4 per cent bonds for outstanding 5½ per cent dollar bonds; exchange to be made on gold basis of the dollar.

Nov. 24—Gold price unchanged. Alfred E. Smith attacks Roosevelt money policy; refers to turning of "130,000,000 Americans into guinea pigs for experimentation." Japan announces that it will hereafter fix gold price on pound sterling not on the dollar.

Nov. 25—Gold price unchanged. St. Louis Chamber of Commerce urges "immediate announcement" of "intention to restore and maintain a gold-secured currency."

Nov. 27—Mass meeting at New York under auspices of Crusaders, American Federation of Labor and American Legion, to oppose Roosevelt's money policies. Another mass meeting held in New York to support of money program. Violent attack on Smith and other Roosevelt opponents by Father Coughlin. Thirty-seven economic teachers at Columbia University urge that "all artificial efforts to depreciate the external value of the dollar cease," and declare that business recovery is impeded by "ever-increasing public distrust of the dollar."

Nov. 28—Government raises gold price to $33.85, after four days without change. Dollar's equivalent 61.08 cents, against day's world price of 64.65 cents. Myron C. Taylor gives up post as chairman of finance committee of United Estates Steel to W. J. Filbert, Taylor remaining as chairman of the board.

Nov. 29—Gold price $33.93; dollar valuation 60.92 cents, world's valuation 63.77 cents. Steel output 26.8 per cent.

DECEMBER

Dec. 1 — Washington gold price raised to $34.01, making Washington's dollar valuation 60.77 cents, against world-market price of 63.70 cents. Sterling, $5.24½. Western railways reduce passenger rates from 3.6 cents per mile to 2 cents and 3 cents, abolishing Pullman surcharge.

Dec. 2—Gold price unchanged; sterling, \$5.15½.

Dec. 4—Washington gold price unchanged; sterling, \$5.04½; dollar's foreign valuation 64.38 cents, or 3.61 cents above RFC valuation.

Dec. 5—Treasury announces that \$899,889,200 Fourth Liberty 4¼% had been exchanged to date for new twelve-year loan, under offer of Oct. 15. National City Bank announces sale of \$50,000,000 stock to RFC, and writing down of capital funds by \$66,500,000. Twelve New York banks have agreed to sell \$93,700,000 of capital notes or preferred stock to RFC. Banking group buys \$25,000,000 State of Pennsylvania relief bonds at 3¾ per cent and sells entire issue in a few hours.

Dec. 6—Treasury offers for quarterly financing \$950,000,000 one-year 2¼ per cent certificates; \$727,600,000 to take up two maturing certificate issues of ¾ per cent and 4¼ per cent respectively, balance for cash. Steel output higher at 27½ per cent; third advance in four weeks.

Dec. 7—New Treasury loan for \$950,000,000 nearly three times oversubscribed; applications stated as \$2,714,000,000. Life insurance presidents, in annual convention, urge stabilization of the dollar.

Dec. 9—Washington gold price unchanged for seventh successive business day. Sterling up again to \$5.17½; foreign valuation of dollar 63.45 cents. Advance in Home Corporation bonds for the week largest since April.

Dec. 11—Gold price still unchanged; sterling \$5.08. Foreign price for dollar 64.12c, against RFC price of 60.77c.

Dec. 13—Washington price of gold unchanged for tenth successive business day. Sterling down to \$5.02½; foreign valuation of dollar 65.18c, or 4.41c above RFC. Senator Thomas of Oklahoma declares that any dollar stabilization above 50 cents "will bring on a fight in Congress that will be terrible" and will "make inflation the outstanding issue in the next Congressional campaign." Steel output 30½ per cent, after touching 31½ per cent earlier in week.

Dec. 14—North German Lloyd asks cut of interest rate on \$17,750,000 dollar bonds from 6 per cent to 4 per cent.

Dec. 15—British House of Lords, acting as highest appellate court, reverses Appellate Court's decision of March which had released British holders of Belgian loan of 1928 from contract to pay in "gold coin of the United Kingdom of or equal to the standard of weight and fineness existing on Sept. 1, 1928." Fifteen Yale professors unite in protest against United States Government's monetary policy; demand earliest possible return to gold at unchanged gold content for the dollar.

Dec. 16—Washington gold price unchanged at \$34.01 for fourteenth consecutive business day. Chesapeake & Ohio, Erie and Nickel Plate railways ask bids for \$25,000,000 equipment, to be financed by PWA.

Dec. 18—Washington gold price up 5c to \$34.06 per ounce, first change since Dec. 1, making dollar's Washington valuation 60.69c; foreign valuation 63.29c. Sterling up to \$5.18. Schacht announces further reduction in service on German foreign bonds to 30 per cent cash and 70 per cent scrip.

Dec. 19—No change in Washington price of gold.

Dec. 20—Washington gold price unchanged again. Steel output 36 per cent of capacity, against 30½ week before and 26.8 at the end of November. In same period of December, 1932, output decreased from 17 per cent to 14; in 1931 from 29 to 21. Stocks break sharply on Union Bag and Paper investigation. Baltimore & Ohio plans \$5,000,000 equipment expenditure on loan from PWA.

Dec. 21—President announces annual purchase by government during next four years of 24,421,410 ounces of domestic silver. Treasury is to retain one-half and to pay the sellers in silver dollars, coined at the established ratio for the remaining 12,210,700. Government's buying price thus fixed at 64½ cents per ounce of silver, against market price of 43 cents on day before announcement.

Dec. 22—Stock market rises on overnight silver news; some mining and smelting shares up 3 to 8 points. Silver bullion rises 1¼ cent per ounce for day to 44¼ cents, not touching year's previous high figure of 45 cents; London price up half penny. Washington gold price unchanged.

Dec. 23—Silver bullion declines one-half cent per ounce at New York. Stock market loses ground slightly.

Dec. 26—Silver bullion declines one-quarter cent per ounce. Washington price of gold unchanged at $34.06 per ounce for sixth consecutive business day. Survey of large New York banks shows 10 per cent of their deposits will be insured under temporary plan of government coöperation.

Dec. 27—United States Government enters suit against New York Clearing House for failing to save Harriman Bank after guaranteeing support. Silver bullion rises ¼ cent to 43¾ cents. Price still ½ cent below figure reached on announcement of government's silver purchase plan. Government's gold price unchanged again. Steel output by usual trade estimate 37 per cent of capacity, against 36 week before, 26.8 at end of November and 25.2 on Nov. 8. Chase Bank announces sale of $50,000,000 preferred stock to RFC and $47,730,000 reduction of capital. Deposit insurance corporation announces 97 per cent of all bank deposits will be insured under temporary plan.

Dec. 28—Washington gold price unchanged for ninth consecutive business day. Silver bullion advances ⅝ cent to 44⅜ cent per ounce. Professor Warren of Cornell, the President's "brain trust adviser" on the currency, defends his policies before the American Economic Association. Executive committee of Economic National Committee on Monetary Policies demands that government "end manipulation of the dollar" and "adopt a definite policy of return to the gold standard." Resolution signed by E. W. Kemmerer, O. M. W. Sprague, Wesley C. Mitchell and thirteen other well-known economic teachers. Code for banks announced by NRA; numerous protests against vexations and irritating charges imposed on banks' depositors and customers.

Dec. 29—Gold price unchanged at Washington. Bankers' code held up by NRA.

Dec. 30—Stocks and bonds close business year with advancing markets. Silver ¼ cent higher at 44⅝ cents, below year's highest but the best December price. Washington gold price unchanged.

Dec. 31—John Maynard Keynes, supposed to be the strongest foreign supporter of the Roosevelt currency policies, describes the "gyrations of the dollar" under the government's manipulation as "more like a gold standard on the booze" than an ideally managed currency. He characterizes as "foolish" the idea "that there is a mathematical relation between the price of gold and the price of other things."

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ECONOMICS

Accountants Assn. of N. Y., 51 Chambers Street, New York City.

American Economic Assn., Northwestern University, Evanston, Ill.

American Fair Trade Association, 71 W. 23rd Street, New York City.

American Home Economic Assn., 41 Eliot Memorial Road, Newton, Mass.

American Institute of Accountants, 135 Cedar Street, New York City.

American Institute of Weights and Measures, 33 Rector Street, New York City.

American Retailers', Inc., 128 W. 31st Street, New York City.

American Statistical Assn., Inc., 236 Wooster Street, New York City.

Chamber of Commerce of the U. S., 1615 H St. N. W., Washington, D. C.

Consumers' League of New York, 150 Fifth Avenue, New York City.

Cooperative League of U. S. A., 167 W. 12th Street, New York City.

French Chamber of Commerce, 4 E. 52nd Street, New York City.

General Society of Mechanics & Tradesmen of New York City, 18 W. 44th Street, New York City.

Home Market Club, 38 Chauncey Street, Boston, Mass.

Institute of Economics, 722 Jackson Place, Washington, D. C.

International Accountants' Society, 3411 S. Michigan Ave., Chicago.

Italian Chamber of Commerce in N. Y., 99 Hudson St., New York City.

League for Industrial Rights, 40 Wall Street, New York City.

Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa.

Merchants' & Consumers' League, 362 E. 169th Street, New York City.

National Association of Cost Accountants, 1790 Broadway, New York City.

National Assn. of Credit Men, 1 Park Ave., New York City.

National Assn. of Real Estate Boards, 59 E. Van Buren St., Chicago, Ill.

National Bureau of Economic Research, Inc., 51 Madison Avenue, New York City.

National Consumers' League, 156 Fifth Ave., New York City.

National Economic League, 6 Beacon Street, Boston, Mass.

National Foreign Trade Council, 1 Hanover Square, New York City.

National Research Council, 29 W. 39th Street, New York City.

National Wholesale Grocers' Assn. of the U. S., 99 Hudson St., New York City.

New York Stock Exchange, 11 Wall Street, New York City.

Order of United Commercial Travelers of America, 632 N. Park St., Columbus, O.

Petroleum Import & Export Corporation, Inc., 70 Pine Street, New York City.

BANKING AND CURRENCY

American Bankers Assn., 22 E. 40th Street, New York City.

American Institute of Banking, 22 E. 40th Street, New York City.

Investment Bankers Assn. of America, 531 First National Bank Bldg., 33 S. Clark St., Chicago, Ill.

Investors' Protection Committee, 280 Broadway, New York City.

National Assn. of Mutual Savings Banks, 347 Madison Avenue, New York City.

National Assn. of Superintendents of State Banks, Nashville, Tenn.

New York Clearing House Assn., 77 Cedar St., New York City.

United States Building and Loan League, 22 East 12th Street, Cincinnati, O.

INSURANCE

Actuarial Society of America, 393 Seventh Avenue, New York City.

American Institute of Actuaries, 720 N. Michigan Ave., Chicago, Ill.

American Institute of Marine Underwriters, 99 John Street, New York City.

American Life Convention, Omaha, Neb.

American Marine Insurance Syndicates, 99 John St., New York City.

X. BUSINESS AND FINANCE

ASSOCIATION OF CASUALTY & SURETY EXECUTIVES, 1 Park Ave., New York City.

ASSOCIATION OF LIFE INSURANCE PRESIDENTS, 165 Broadway, New York City.

BOARD OF UNDERWRITERS OF NEW YORK, 99 John Street, New York City.

CASUALTY ACTUARIAL SOCIETY, 90 John Street, New York City.

NATIONAL ASSN. OF LIFE UNDERWRITERS, 11 W. 42nd Street, New York City.

NATIONAL ASSN. OF MUTUAL CASUALTY CO.'S, 60 E. 42nd Street, New York City.

NATIONAL ASSN. OF TRAVELERS' AID SOCIETIES, 23 W. 43rd Street, New York City.

NATIONAL BOARD OF FIRE UNDERWRITERS, 85 John Street, New York City.

NATIONAL BUREAU OF CASUALTY & SURETY UNDERWRITERS, 1 Park Ave., New York City.

NATIONAL COUNCIL ON COMPENSATION INSURANCE, 151 Fifth Ave., New York City.

NATIONAL FIRE PROTECTION ASSOCIATION, 60 Batterymarch, Boston, Mass.

SURETY ASSOCIATION OF AMERICA, 60 John Street, New York City.

DIVISION XI

AGRICULTURE AND ALLIED INDUSTRIES

AGRICULTURAL CONDITIONS

By Henry A. Wallace

Secretary of Agriculture

PROGRAM OF PLANNED PRODUCTION

Under Federal guidance American farmers in 1933 began to plan their production. They acted in accordance with the provisions of the Agricultural Adjustment Act which seeks to build a regulated and properly balanced agricultural industry in which the forces of production will be bridled so as not to outstrip the demand. This is a colossal undertaking, largely experimental and yet urgently necessary. Broadly, the problem is to balance agriculture internally and externally, internally by adjustments among its numerous enterprises and externally by suiting the total production to the total demand. It is a program of economic planning, the first of its kind in the nation's history. The necessity for it will appear from a glance at the causes of the agricultural depression.

THE CAUSES OF AGRICULTURAL DEPRESSION

From the beginning of the Twentieth Century until the outbreak of the World War, American agriculture stood in a satisfactory relationship to its markets both foreign and domestic. Agricultural prices rose more than other prices. Net farm earnings increased and also farm valuations. Farmers shared ratably in the nation's steadily increasing prosperity. Farm exports declined, to be sure, but growing consumption at home compensated for the decline. The agricultural price situation, besides being comparatively favorable to agriculture, seemed stable. It was the result of a long evolution in which the important price-making forces attained a balance. There was no chronic disparity between production and consumption, and farmers had some assurance that efficient work would bring reasonable pay.

The war destroyed this satisfactory balance of forces. It led the United States into tremendous production for export, while saddling importing countries with debts and political troubles that reduced their buying power. In 1919 our agricultural exports exceeded the pre-war volume by 45 per cent. As lately as 1926-27 the trade was 36 per cent above pre-war. Thereafter it declined, gradually until 1929 and then sharply. After 1930 the export proportion of our farm production averaged less than 7 per cent of the total, compared with 15.8 per cent in 1919. But the post-war decline in farm exports was not matched by a decline in production. On the contrary, the output increased. Here was a principal cause of the farm crisis. Declining exports with mounting production naturally mean mounting surpluses. Export surpluses that cannot be profitably sold swamp the domestic market. When the home as well as the foreign demand declined, the farmers were literally buried under their accumulating surpluses.

THE NEED FOR CROP ADJUSTMENTS

These facts, though well known, may well be repeated, because the delusion persists that agriculture can recover without making crop adjustments. Inflation or price-fixing are proposed alternatives. Controlled inflation may promote social justice through a fairer distribution of the national income, and may lighten the burden of debt and taxes. By itself, however, it does nothing to correct maladjustments in production. As long as much maladjustments exist agriculture's earnings will be precarious and small. As for price-fixing, it does not work for long in overstocked markets or when consumers have little money. The need to deal with the farm problem by production adjustments is overwhelming unless radical tariff modifications should suddenly build up foreign purchasing power for our surplus farm products. Lasting recovery cannot be guaranteed in any other way. It is from the standpoint of production, therefore, rather than from the standpoint of prices that the farm problem in this article is dealt with.

THE ATTACK ON FARM SURPLUSES

In passing the Agricultural Adjustment Act Congress declared the purpose was " to establish such a balance between the production and the consumption of agricultural commodities as will restore the purchasing power of farm products to the level of the base period.'' This declaration relates production adjustments to prices as cause to effect. It is impossible to transpose the relationship. To start with prices, and leave production unchanged would make a bad situation worse. It would mean going against the law of supply and demand, a course which the Adjustment Act by implication excludes. Congress ordered an attack upon the surpluses. It is not difficult to see why.

World carry-over of American cotton in the 1932-33 season was 11,600,000 bales, about two and a half time the normal carry-over. Our whea carry-over in 1933 was nearly 390,000,000 bushels, more than three time the normal. We had on hand almos half a year's average wheat production. Our hog farmers likewise ha excess production. They were producing almost as if the large war-tim European demand still existed. Ye in 1932 our exports of hog product represented the equivalent of only 5,000,000 hogs, as compared with mor than 16,000,000 in 1919. The numbe of milk cows on farms in the United States reached an all-time record in January, 1933. With consumer purchasing power reduced by urban unemployment and business depression generally, the market could not absorb the production of these cows at satisfactory prices. All told, we had probably 40,000,000 too many acres of plowed land in crops.

COTTON PRODUCTION CONTROL

On June 19 the Adjustment Administration announced a program of coöperation with cotton growers. It offered two plans: (1) a cash payment per acre to the individual farmer in return for an agreement to reduce his acreage; and (2) a cash payment per acre plus an option to buy at six cents a pound a quantity of Government-owned cotton equal to the farmer's reduction in output. Payments were to vary with yields per acre. Approximately 1,031,000 cotton producers contracted to withdraw 10,396,000 acres. On this area the production, if the crop had been allowed to mature, would have exceeded 4,300,000 bales. The reduction strengthened the cotton market, but was only the first step in cotton control. It is planned in 1934 to limit the cotton area to approximately 25,000,000 acres.

OTHER PRODUCTION RESTRICTIONS

Wheat farmers, representing 80 per cent of all the wheat acreage in the country, contracted to reduce their plantings by 8,000,000 acres in 1934. An international wheat agreement among importing and exporting countries was signed by many countries at London on Aug. 25. This country's wheat restriction program harmonized with that agreement. In an emergency hog-adjustment program the Administration purchased 6,200,000 pigs and 200,000 sows due to farrow. Announcement of a more permanent program, including corn as well as hogs, followed. This program called on participating farmers for a reduction of 20 to 30 per cent in their acreage of corn and of 25 per cent in the number of hogs farrowed and marketed. Tobacco growers pledged themselves to reduce production as much as 30 per cent. Projects affecting the cigar types provided for reducing the acreage harvested in 1933 to approximately half that grown in 1932, and for limiting the acreage in 1934 and 1935, to the same extent or by a lesser amount at the discretion of the Secretary of Agriculture.

As compensation for cotton, wheat, and tobacco acreage reductions, and for an emergency hog buying program to remove a burdensome surplus, the Administration made payments to farmers amounting to about $300,000,000. For corn and hog reduction, it expected to pay $350,000,000. Taxes were imposed on the first processing of the commodities involved to furnish necessary funds. These taxes, in the main, will be passed on to consumers, whose power to pay them will increase as business recovery proceeds. Increased farm earnings will be an important aid to that recovery.

THE DAIRY SITUATION

Milk and milk products are among the basic commodities included in the Agricultural Adjustment Act. The Administration did not begin immediately, however, with a program for reducing dairy production. It removed considerable quantities of butter from the market, which it turned over to the Surplus Relief Corporation for distribution to the unemployed, and promoted trade agreements among milk producers, processors, and distributors. These agreements applied to both contracting and non-contracting producers and distributors, through blanket licensing. They established prices to producers, and either specified or limited prices to consumers. Each agreement contained a code of fair practices.

Meantime, however, dairy production continued to increase. The milk agreements tended, wherever they involved prices out of line with consumer buying power to divert increased supplies of milk into the butter industry. Gains to producers from increased fluid milk prices were offset, partly or wholly, through declines in returns for milk sold for non-fluid uses. The dairy industry, like other branches of agriculture, needs production adjustments, as well as devices for regulating marketing. The Administration has plans under consideration.

IMPROVED CONDITIONS IN 1933

Agricultural conditions improved greatly over the nation as a whole, though by no means uniformly, during 1933. Gross farm income from the year's production will be about $6,100,000,000, plus payments to farmers for restricting production. This compares with $5,143,000,000 received in 1932. From mid-March to mid-October, farm commodity prices rose 47 per cent. In the same period, however, the prices of things bought by farmers advanced considerably. Hence, the gap between farm and non-farm prices persisted.

In large measure, however, the improvement resulted from the Government's monetary policy which affected mainly cotton, tobacco, and grain. It did not indicate a lessening need for production adjustments. Depreciation of the dollar in foreign exchange had little influence on most farm products, and practically none on those governed chiefly by local conditions. Some farmers, notably the beef cattle men, lost purchasing power between March and October. Monetary action, though desirable to lessen the burden of farm debt and taxes, does not obviate the need for bringing supply and demand into balance.

But the producer should not make the whole adjustment. He is entitled to look for help through a revival of demand. In the domestic market demand will improve with trade recovery, and with the diffusion of purchasing power through action taken under the National Recovery Act. In the foreign market it will improve with world recovery, and with the removal of trade restrictions. Foreign nations refuse our farm products largely because we allow them no practicable means of payment, such as an opportunity to send us various things in exchange. We shall need a foreign outlet indefinitely for many of our farm products, but we cannot go on selling abroad without buying abroad. Unless we want to put our internal economy on substantially a nationalist basis, we must face the necessity of modifying our tariff so as to permit a larger quantity and value of imports to enter the country. Trade cannot be permanent unless it is reciprocal. In the great task of balancing our farm production with the demand, we must not overlook any rational and proper means of keeping trade channels open.

AGRICULTURAL LEGISLATION

By Milton S. Eisenhower

Director of Information, U. S. Department of Agriculture

GENERAL

Most of the legislation enacted by the 73rd Congress in its first session had an important bearing on agriculture, and the chief enactments affected it vitally. In an extraordinarily comprehensive measure Congress dealt with crop adjustments, farm mortgage debt, and currency policy. Another law provided additional credit facilities for farmers, and repealed various clauses of the Agricultural Marketing Act of 1929 which created the Federal Farm Board. Unemployment legislation provided "for relief through the performance of useful public work including forestation." Congress created the Tennessee Valley Authority, with broad powers to maintain and operate the Federal Government's properties at Muscle Shoals, Ala., to promote agricultural and industrial development in the Valley, and to control floods in the Tennessee River and Mississippi River basins. The National Industrial Recovery Act promised benefit to agriculture through increases in the purchasing power of wage-earners and others.

AGRICULTURAL ADJUSTMENT

Purposes of the Act. — Congress provided means for dealing with the farm problem in an act (Public No. 10, 73rd Congress) "to relieve the existing national economic emergency by increasing agricultural purchasing power, to raise revenue for extraordinary expenses incurred by reason of such emergency, to provide emergency relief with respect to agricultural indebtedness, to provide for the orderly liquidation of joint-stock land banks, and for other purposes." The act, which was approved by the President on May 12, 1933, has three titles, two applying directly to agriculture, and the third to the national currency.

Provisions of the Act.—Title I deals with farm-production control and marketing agreements, and gives the measure its popular name—The Agricultural Adjustment Act. Title II relates to farm credits by amendments to the Federal Farm Loan Act, and by appropriations for various types of agricultural credit. Title III empowers the President to arrange for the expansion of credit by the purchase of Government securities through the Federal Reserve Banks, to cause the issuance of United States notes in his discretion up to the amount of $3,000,000,000, and by proclamation to fix the weight of the gold dollar and the silver dollar. This title is called the Inflation Amendment to the Agricultural Adjustment Act and affects agriculture along with other industries by its potential influence upon the general price level.

Production and Consumption Balance.—In a declaration of policy under Title I, the Act states it is the purpose of Congress to establish such a balance between the production and the consumption of agricultural commodities as will restore the purchasing power of farm products "to the level of the base period." For all agricultural commodities except tobacco, the base period is the pre-war period August, 1909 to July, 1914. For tobacco the base period is the post-war period August, 1919 to July, 1929. To protect consumers, the Act declares that farm production must be adjusted so as not to give the farmer a higher percentage of the consumer's total retail expenditures for agricultural commodities than he received in the base period.

Crop Adjustment. — The measure seeks to raise the incomes of farmers by two principal means: (1) By getting their coöperation in necessary crop adjustments calculated to bring supply into a better balance with demand; and (2) by authorizing the Secretary of Agriculture to enter into marketing agreements with producers, processors and distributors of agricultural products, so that competitive wastes may be eliminated, trade practices improved, surpluses moved into markets for consumption, and producers' prices raised.

Compensatory Payments.—In connection with certain basic agricultural commodities, the Secretary of Agriculture may make compensatory payments to producers in return for agreements to curtail their acreage or their production for the market. The basic commodities specified are: Wheat, cotton, corn, hogs, tobacco, rice, and milk and its products. It is not mandatory for the Secretary to take this action. He may levy on the first domestic processing of any of the basic commodities, in order to raise funds for the necessary payments to farmers. The act also appropriates $100,000,000 under title I for administrative expenses and compensatory payments, and authorizes the Secretary of the Treasury to advance funds to the Secretary of Agriculture in anticipation of the proceeds of processing taxes.

Marketing Agreements. — Under the sections relating to marketing agreements, the Secretary of Agriculture may bring producers, processors, or handlers of farm commodities into trade relationships calculated to promote a better adjustment of supply to demand, to assure fair prices to producers, and to protect the consumer. He may license the parties concerned under regulations penalizing violations of the agreements. The antitrust laws do not apply to agreements thus made.

FARM MORTGAGE INDEBTEDNESS

Title II of the act, originally introduced in Congress as a separate bill, contains provisions for refinancing farm indebtedness whereby excessive debts may be cut down, interest rates reduced, and payments on principal postponed. It provides funds also for loans to redeem land which has been taken from farmers by foreclosures. Farmers whose mortgages are already held by any of the 12 Federal land banks, and those who borrow through national farm loan associations during a two-year period after the passage of the act, also benefit directly by a reduction of their interest charges to 4½ per cent for a period of five years, and by a postponement of principal payments. The measure authorizes the appropriation of $15,000,000, and such additional sums as may be necessary to reimburse Federal land banks for this reduction. The Act also authorizes the appropriation of $50,000,000 out of which the Secretary of the Treasury is authorized to make subscriptions to the paid-in surplus of the Federal land banks equal to the amounts of postponements and extensions of payments granted on mortgages held by the banks. The orderly liquidation of joint stock land banks is provided for, and a fund of $100,000,000 is made available for loans to assist in this process. Out of this sum, $25,000,000 is made available to enable these banks to postpone foreclosures on delinquent loans. It authorizes and directs the Reconstruction Finance Corporation to make $200,000,000 available to the Land Bank Commissioner for direct loans on farm real estate and personal property including crops, and authorizes the Reconstruction Finance Corporation to lend up to $50,000,000 to agricultural improvement districts, such as irrigation and drainage and levee districts. In addition, it permits the Reconstruction Finance Corporation to advance not more than $5,000,000, on the request of the Secretary of the Interior, to complete authorized reclamation projects.

The National Industrial Recovery Act (Public No. 67, 73rd Cong., approved June 16, 1933) authorizes the President to allocate not more than $100,000,000 of the $3,300,000,000 appropriated by that act for expenditures under titles I and II of the Agricultural Adjustment Act.

NEW FARM CREDIT FACILITIES

Credit Corporations and Coöperative Banks.—Under the Farm Credit Act of 1933 (Public No. 75, approved June 16, 1933) Congress authorized and directed the Governor of the Farm Credit Administration to organize and charter a production credit corporation and a bank for coöperatives in each city in which a Federal land bank is located. Directors of the Federal land banks are *ex officio* the directors of these new institutions. The production credit corporations may purchase preferred stock in local credit associations which function as discounting agencies with the Federal intermediate credit banks. The coöperative banks may make loans t farmers' coöperative association This applies to coöperative associations organized for purchasing as we as selling.

Amendments.—Various clauses i this Act amended the Agricultura Marketing Act of 1929, which create the Federal Farm Board. The ne law repealed provisions of the Agricultural Marketing Act which create advisory commodity committees, authorized the Farm Board to investigate overproduction, and provided fo loans to assist in forming clearinghouse associations. However, Section 51 and 52 of the new legislation authorized loans to finance the operations of coöperative associations an also loans to assist such organization in constructing or acquiring physica marketing facilities. The law also contained various amendments to th Federal Farm Loan Act.

FRUIT EXPORT CERTIFICATION

Inspection of American grown apples and pears for foreign markets was provided for in an act (Public No 39), which was approved June 10 1933. This measure made it unlawful for anyone to export apples or pears in packages not accompanied by certificates showing that the apples or pears meet the minimum of quality established by the Secretary of Agriculture for export shipments. Additional certification is required in the case of shipments to countries that impose special requirements as to the condition of imported apples or pears.

COTTON AND GRAIN CROPS

By W. F. Callander

Chairman, Crop Reporting Board, Department of Agriculture

COTTON

Effect of A.A.A. Control. — The 1933 cotton crop was the first crop to be affected by the control policy of the Agricultural Adjustment Administration. One-fourth of the acreage in cultivation on July 1 was removed from production as a result of rental agreements between the Secretary of Agriculture and the individual growers. Economic considerations favored an increased acreage of this crop in 1933. Accompanying falling prices, the acreage had been reduced successfully for three years until in 1932 the planted cotton area was 36,542,000 acres or 21 per cent below the peak acreage of 1925. In the meantime, the prices of other crops grown for sale in the Southern States had declined to a point where cotton became, even at the low prices prevailing for both lint and seed, relatively more profitable than competing crops to many growers. The ready market and ease of converting the commodity into cash also influenced the tendency toward an increased acreage.

Acreage. — The acreage of cotton in cultivation July 1, as given in the Dec. 1 preliminary production report, was 40,929,000 acres, 12 per cent greater than in 1932, though still 5,043,000 acres or 11 per cent less than the peak acreage of 1925. As a result of the cotton acreage reduction campaign of the A. A. A., approximately 10,384,000 acres of the land on which this cotton was standing on July 1 was rented to the Secretary of Agriculture at rates varying from $6 to $20 per acre in cash (or equivalent in cash and cotton option contracts), depending upon the yield potentialities of the particular field, for amounts aggregating over $158,000,000. The lessor of the land, under regulations of the Secretary, plowed under or otherwise removed the cotton plants growing on the leased land. In Texas, 4,325,000 acres or 27 per cent of the acreage in cultivation were removed; 1,160,000 acres in Oklahoma; 925,000 acres in Arkansas; 900,000 acres in Mississippi; 810,000 acres in Alabama; 695,000 acres in Georgia; 450,000 acres in Louisiana; 426,000 acres in South Carolina; 260,000 acres in Tennessee; 224,000 acres in North Carolina, and smaller acreages in the remaining states. The acreage removed in New Mexico, Arizona and California, where high yields per acre are secured on irrigated land, was relatively small.

Abandonment of acreage from such causes as disease, insect damage, flooding, extreme drought, and similar causes was comparatively light in 1933. About 400,000 acres, 1.3 per cent of the acreage in cultivation were not harvested, in comparison with an average (1923-1932) abandonment of 2.6 per cent. Acreage of cotton actually harvested in 1933 was 30,144,000 acres, 16 per cent less than in 1932, 32 per cent less than the peak acreage in 1925, and 25.7 per cent less than the average acreage of the five years, 1928-32.

Cotton Yields. — The 1933 season again illustrated the dominant role played by the boll weevil in cotton production in the United States. With weevil propagation and activity adversely affected by hot and dry weather at opportune intervals, the yield potentialities of the crop were greatly increased. Growing conditions were particularly favorable in the Atlantic Seaboard States where the crop was early and fruited well. During June the dry, hot weather greatly reduced the potential damage from the boll weevil. During August, wet weather, particularly in South Carolina, increased weevil activity. Losses in the east during that month were more than offset, however, by increases due to timely rains west of the Mississippi. During September, conditions were unusually favorable for maturing late bolls and for picking and ginning. A general improvement occurred in all states except Mississippi and Louisiana and was particularly pronounced in Texas. Conditions continued generally favorable for harvesting during October, and picking and ginning progressed rapidly with minimum field losses. The increased yield became particularly noticeable in Texas and Oklahoma. November was likewise favorable for picking and ginning. The average yield on the acreage harvested in 1933 of 209.4 pounds was the second highest since the weevil infestation became general through the Cotton Belt. These high yields were secured in the face of relatively light use of commercial fertilizer. Coupled with this favorable circumstance in the weevil territory was the advent of relatively abundant rainfall in the non-weevil territory of Northwest Texas and Southwest Oklahoma in September, at which time the crop was sufficiently advanced to derive maximum benefits. The yield per acre of 209.4 pounds was only 2.1 pounds per acre less than the yield of 211.5 pounds in 1931, the highest yield since 1914, and was 21 per cent higher than in 1932 when an average yield of 173.3 pounds was secured. The ten-year average yield for the period 1922 to 1931 is 167.4 pounds. In Texas and Oklahoma yields per acre in 1933 were 187 pounds and 210 pounds, in comparison with average yields of 136 pounds and 143 pounds. In North and South Carolina 1933 yields were 303 pounds and 257 pounds as against average yields of 272 pounds and 201 pounds. Georgia and Alabama produced at the rate of 247 pounds and 194 pounds per acre, while average yields are only 172 pounds and 172 pounds. In Arkansas 194 pounds were produced per acre in comparison with the average of 188 pounds. Mississippi and Louisiana had more boll weevil damage (because of less opportune dry hot spells) and the yield of 190 pounds in the former was practically equal to the average of 192 pounds, while the yield of 181 pounds in the latter was below the average of 191 pounds.

Cotton Production.—With the favorable growing conditions and resultant high yields per acre, the 1933 cotton crop on the acreage originally in cultivation had a potential output of over 17,000,000 bales. Were it not for the acreage reduction program of the A. A. A., the acreage would have been one of the three largest crops ever produced in the United States. As a result of the removal of acreage, however, the crop was held down to 13,177,000 bales of 500 pounds gross weight (Dec. 1 preliminary estimate) which was 1,489,000 bales or about 10 per cent below the average production of the five-year period, 1928-32, and 175,000 bales or 1.3 per cent greater than the 1932 crop of 13,002,000 bales. Production in Texas was 4,475,000 bales; Oklahoma 1,285,000 bales; Mississippi 1,180,000 bales; Georgia 1,110,000 bales; Arkansas 1,065,000 bales; Alabama 980,000 bales; South Carolin 742,000 bales; North Carolina 690 000 bales and Louisiana 486,000 bales.

Cottonseed. — The production o cottonseed in 1933 was 5,858,000 tons compared with 5,782,000 tons in 193 and average production of 6,515,000 tons (1927-31). This production i computed by calculating 65 pound of seed for each 35 pounds of lint.

Crop Value. — The total value o the lint and seed from the 1933 crop evaluated at Dec. 1 prices (paid t producers at local trading centers was $697,248,000, more than 50 pe cent larger than for the crop o nearly the same size in 1932, when the crop had a value of $425,488,000 but still below the 1927-1931 value of $1,159,561,000. The value given above for the year 1933 does not in clude the $110,000,000 paid to farm ers for cotton land rented to the Sec retary of Agriculture. Cotton lin alone had a value in 1933 of $617, 716,000; in 1932 of $371,861,000, and in 1931 of $490,668,000.

Prices.—The Dec. 1 average price of lint per pound was 9.4 cents, compared with 5.7 cents in each of the two preceding years; the average Dec. 1 price of cottonseed was $13.58 per ton compared with $9.27 on the same date in 1932 and $10.44 on Dec. 1, 1931. When valued at average prices for the marketing season, total values are slightly different. When all of the cotton lint is normally marketed, a considerable quantity of the seed is taken back to the farm from the gin and utilized as feed, seed and fertilizer. Thus, the cash income from cottonseed from the 1932 crop was only $34,155,000.

GRAIN*

Crop Reductions. — The 1933 season was extremely unfavorable when measured in terms of grain production. The production of wheat was the smallest since 1896, the corn crop was the smallest since 1901, with the exception of 1924 and 1930, while the production of oats was the smallest since 1897. The barley crop was smaller than in any year since 1922, and flaxseed production the smallest since 1919. Rye, grain sorghums, rice and buckwheat production were also below average. The combined production of the grain crops was 3,895,555,000 bushels, which is 27.9 per cent less than in 1932, and even less by 17.5 per cent than the drought stricken crops of 1930. The average production was 5,041,352,000 bushels.

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* Average acreage and production when mentioned relate to the five years, 1926 to 1930 inclusive; average yield per acre refers to the ten years, 1921 to 1930 inclusive.

Food Crops. — The production of grain crops used primarily for human food,—wheat, rye, buckwheat and rice, combined was 592,060,000 bushels in 1933, 28.8 per cent less than in 1932 and 38.4 per cent below the average production of 961,061,000 bushels.

WHEAT

All Wheat Production.—The production of all wheat in 1933 of 527,413,000 bushels was less than in any other year since 1896, and 70,000,000 bushels less than the amount required in recent years for domestic consumption as flour and for seeding the new crop. In as much as some wheat is always fed to poultry and other livestock on the farms where produced, and some wheat is always shipped out either as wheat or as flour, it is quite apparent that the large stocks of wheat which have been accumulating for several years will be reduced considerably by the end of the current marketing season. Production in 1933 was 29 per cent less than the 1932 crop of 744,076,000 bushels and 43 per cent less than the large crop of 932,221,000 bushels produced in 1931. Acreage harvested in 1933 was 47,493,000 acres, about 10,000,000 acres less than in either of the two preceding years. The very low acreage in 1933 results from a combination of unfavorable weather conditions and heavy abandonment in both winter and spring wheat sections of the country. This year was one of those very unusual ones in which both crops were short. More frequently a short winter wheat crop occurs when the spring wheat crop is average or better and *vice versa.*

Winter Wheat.—The winter wheat crop of 351,030,000 bushels was only three-fourths as large as the relatively small crop of 1932 and not much more than one-third as large as the record winter wheat crop of 817,962,000 bushels in 1931. The crop was seeded under very dry conditions in the fall of 1932, particularly in the Great Plains area, and severe abandonment occurred during the late fall and winter as a result of continued drought and high winds. The drought continued during the early spring and yields per acre were sharply reduced on the acreage remainng for harvest. The abandonment of acreage was one of the largest on record and is estimated to be 33.4 per cent of the acreage sown, compared with 16.7 per cent in the preceding year and an average abandonment of 12.4 per cent. The revised estimate of the winter wheat seeded in the fall of 1932 is 42,692,000 acres, 0.8 per cent more than the 42,348,000 acres seeded in the fall of 1931 and about 6 per cent less than the average seeded in the years 1926 to 1930. Yield per acre harvested in 1933 was 12.4 bushels compared with 13.5 bushels in 1932, 19 bushels in 1931 and the average of 14.7 bushels.

The greatest deficiency in the production of the wheat crop in 1933, when measuring against recent years, occurred in hard red winter wheat. There has been a considerable expansion of acreage of this class or type of wheat since it is grown in the less humid areas of the Great Plains in which the principal expansion in wheat acreage has occurred recently. The production of hard red winter wheat was 169,720,000 bushels, only 61 per cent as large as the relatively small production in 1932 and only one-third as large as the production in 1931. Soft red winter wheat, which is grown largely east of the Mississippi River, was also curtailed. The production of 146,879,000 bushels was 2 per cent less than in 1932 and 42 per cent less than the relatively large crop of 1931.

Spring Wheat.—The 1933 crop of all spring wheat was much smaller than the production in 1932 but not as short as the very small production of 1931. The production of all spring wheat, including durum, was 176,383,000 bushels as compared with 268,367,000 bushels in 1932 and 114,259,000 bushels in 1931. The curtailed production occurred largely in the Dakotas and Montana where extreme drought and high temperatures during June and July caused a material abandonment of acreage and low yields on acreage harvested. On the other hand, the production in the Pacific Northwest States was greatly increased because of good yields on a greatly increased acreage. The increased acreage was in part seeded upon abandoned winter wheat land. The production of durum, or macaroni, wheat of 16,109,000 bushels was only about two-fifths as large as the 40,600,000 bushels produced in 1932 and four-fifths as large as the 20,712,000 bushels produced in 1931. Acreage of durum wheat harvested was 2,310,000 acres in 1933; 3,946,000 acres in 1932; 2,960,000 acres in 1931. The yield per acre of 7 bushels in 1933 was the same as in 1931 and about one-third less than the 1932 yield of 10.3 bushels. The production of spring wheat other than durum was 160,274,000 bushels, compared with 227,767,000 bushels in 1932 and 93,547,000 bushels in 1931. The harvested acreage of 16,763,000 in 1933 was 7 per cent less than in 1932 and more than one-half again as large as the harvested acreage of 11,063,000 in 1931. The yield per harvested acre in 1933 was 9.6 bushels, compared with 12.7 bushels in 1932 and 8.5 bushels in 1931. Over 800,000 acres of durum wheat and 3,900,000 acres of other spring wheat were abandoned in 1933.

Wheat Crop Value. — Because of relatively higher prices prevailing on Dec. 1, the value of the 1933 wheat crop, based upon the Dec. 1 price, was larger than in 1932 by more than $100,000,000. At the average price of 67.8 cents per bushel on Dec. 1, the 1933 crop was valued at $357,525,000. In 1932 at the very low farm price of 32 cents per bushel, the crop was valued only at $238,305,000. The very large crop of 1931, with a Dec. 1 farm price of 44.3 cents per bushel, was valued at $413,075,000.

RYE

The 1933 production of rye was 21,184,000 bushels, only about one-half as large as the 1932 crop of 40,639,000 bushels, and only two-thirds as large as the short crop of 32,290,000 bushels in 1931. The center of the rye production of this country is in the Dakotas where the crop was sharply reduced on account of drought. There has been a downward trend in acreage of rye during recent years and the present level of production is much below that of the preceding ten years. Acreage harvested in 1933 was only 2,352,000, while in 1932, 3,334,000 acres were harvested and in 1931, 3,104,000 acres. The yield per acre in 1933 averaged only 9 bushels per acre compared with 12.2 bushels in 1932 and 10.4 bushels in 1931. The estimated acreage of rye seeded for all purposes, including in addition to grain, the acreage utilized for hay, pasture and cover crops and also allowing for abandonment was 4,439,000 acres. In the fall of 1931 acreage seeded for all purposes was 5,085,000. Based upon the Dec. 1 price of 55.4 cents per bushel, the 1933 crop was valued at $11,737,000, compared with 22.3 cents per bushel and $9,073,000 in 1932 and 38.8 cents per bushel and $12,524,000 in 1931.

BUCKWHEAT

The 1933 production of buckwheat was 7,844,000 bushels, compared with 6,727,000 bushels in 1932 and 8,890,000 bushels in 1931. The acreage harvested of 462,000 acres was 2 per cent more than in 1932 but about 8.5 per cent less than in 1931. Conditions were quite satisfactory for the development of the buckwheat crop this year. The yield per acre was 17 bushels in 1933, compared with 14.8 bushels in 1932 and 17.6

bushels in 1931. At the Dec. 1 farm price of 53.1 cents per bushel, the 1933 crop had a total value of $4,163,000 compared with $2,691,000 last year and $3,770,000 in 1931.

RICE

The 1933 rice crop of 35,619,000 bushels (45 pounds rough) was 12 per cent less than the 40,408,000 bushels produced in 1932 and 21 per cent less than the 44,873,000 bushels in 1931. With practically no variation in the yields per acre during these three years the successively smaller crops were due to successively smaller acreages harvested, from 964,000 acres in 1931 and 868,000 acres in 1932 to 769,000 acres in 1933, the smallest acreage of any of the fifteen years for which estimates have been prepared. The production in Arkansas, Louisiana and Texas was 29,577,000 bushels, compared with 33,368,000 bushels in 1932 and 36,373,000 bushels in 1931. In California, the only other state producing this crop, production was 6,042,000 bushels compared with 7,040,000 bushels in 1932 and 8,500,000 bushels in 1931. Because of higher prices per bushel, the 1933 crop, while the smallest in the three years, had the greatest value. At 77.9 cents per bushel the 1933 crop had a value of $27,765,000; at 39.1 cents per bushel the 1932 crop had a value of $15,792,000, and at 60.8 cents per bushel, the 1931 crop had a value of $27,268,000.

CORN

The 1933 corn crop of 2,330,237,000 bushels is 19.8 per cent smaller than that of 1932 and 10 per cent smaller than that of 1931, but is 12.8 per cent larger than the small crop of 1930. These estimates are expressed in equivalent yield of ear corn on the entire acreage grown for all purposes. The acreage of corn harvested for all purposes in 1933 of 102,239,000 acres, was 5.9 per cent less than the 108,668,000 acres harvested in 1932 and 3.5 per cent less than the 105,948,000 acres harvested in 1931. In the North Central States the 1933 acreage was 7.3 per cent less than in 1932, in the South Central States, 6 per cent less, and in the South Atlantic States 0.4 per cent less. In the North Atlantic States the acreage in 1933 was 0.5 per cent greater than in 1932 and in the Western States 1.2 per cent greater. In the Corn Belt unfavorable weather conditions at planting time, early summer drought and damage from chinch bugs in some areas contributed to some abandonment of acreage. Each of the Corn Belt States showed a smaller acreage than harvested in 1932 but the most pronounced changes occurred in Illinois where the decrease was 11 per cent and in South Dakota where it was 33 per cent. Outside the Corn Belt the most marked change in important corn producing states was in Oklahoma where, due largely to a shift from corn to cotton, a decrease of 21 per cent in acreage took place. The yield per acre of 22.8 bushels in 1933 compares with 26.8 bushels in 1932 and was 13 per cent less than the ten-year average yield of 26.1 bushels. Although yields were considerably below average, the corn matured well as a result of the unusually favorable autumn and the crop was somewhat better in quality than had been anticipated earlier in the season.

Of the total corn acreage, 88,767,000 acres were harvested for grain in 1933, 94,415,000 acres in 1932 and 90,055,000 acres in 1931. Grain production was estimated at 2,025,015,000 bushels for 1933, 2,507,303,000 bushels in 1932 and 2,229,088,000 bushels in 1931. Production of corn for silage was 29,963,000 tons, somewhat smaller than the 31,184,000 tons produced in 1932 and 33,434,000 tons produced in 1931. Acreage cut for silage in 1933 was 4,425,000 acres; in 1932 4,109,000 acres were used for this purpose and in 1931, 4,704,000 acres. The acreage cut for fodder or hogged or grazed in 1933 was 9,047,000 acres compared with 10,144,000 acres in 1932 and 11,189,000 acres in 1931. Valued at the Dec. 1 price of 39.4 cents per bushel, the corn crop for all purposes amounted to $917,605,-

000, nearly double the 1932 value of $558,902,000 when the price was only 19.2 cents per bushel, and only slightly less than the 1931 value of $929,147,000 when the price was 35.9 cents per bushel.

OATS

The outstandingly short crop of oats in 1933 was only 722,485,000 bushels, 42 per cent less than the crop of 1,246,658,000 bushels in 1932 and 36 per cent less than the 1,126,913,000 bushels in 1931. Production in the North Central States was only slightly more than one-half as large as in 1932, in the South Central States only two-thirds, in the North Atlantic States four-fifths and in the South Atlantic States seven-eighths as large. In the Western States the crop was practically as large as in the preceding year. Due to unfavorable weather conditions, the seeding of oats was later than usual in the important states and seriously delayed in the Central and Eastern Corn Belt area. Considerable acreage of oats drowned out in the Eastern Corn Belt. In the Plains States there was an appreciable loss of acreage early in the season. Some of the oats originally intended for grain were so poor that they could be utilized only for hay. The acreage of oats harvested in 1933 of 36,541,000 acres was 11.8 per cent less than in 1932, 8.8 per cent less than in 1931 and the smallest acreage since 1909. In the Corn Belt States which usually grow 80 per cent of the total oats acreage of the country, there was a decrease of almost 12 per cent, in comparison with 1932. The oats yield of 19.8 bushels per acre in 1933, except for 189 was the lowest yield on record; i 1932 the average yield was 30 bushels; in 1931 the average yiel was 28.1 bushels. The very sho supply of oats has been reflected i a materially higher price per bushe At the Dec. 1 price of 30.4 cents pe bushel, the 1933 crop had a value o $219,520,000; in 1932 at 13.4 cent per bushel, the crop was valued a $167,333,000, and in 1931 at 23 cent per bushel, the crop was valued a $259,553.000.

BARLEY

The 1933 barley crop of 156,104,00 bushels is 48 per cent less than th 1932 crop of 302,042,000 bushels an was the smallest crop harveste since 1922. Heavy abandonment o acreage in the Dakotas and poo yields in the large producing state of Minnesota, Iowa, the Dakotas Nebraska and Kansas account fo the short crop. The harvested acreage of 10,052,000 acres, compare with 13,346,000 acres harvested i 1932 and 11,424,000 acres harveste in 1931. Thin stands, short stra and small heads brought about by the drought and extreme heat during the blooming and filling stages resulted in the smallest yield pe acre on record. The average yiel of 15.5 bushels per acre compares with 22.6 bushels in 1932 and 17.4 bushels in 1931. At the Dec. 1 price of 40.7 cents per bushel, the barley crop had a value of $63,486,000; i 1932 at a price of 20.1 cents pe bushel the crop was valued at $60,689,000 and at 35.3 cents per bushel the crop of 1931 was valued at $70,034,000.

LIVESTOCK AND MEATS

BY E. W. SHEETS

CHIEF, ANIMAL HUSBANDRY DIVISION, BUREAU OF ANIMAL INDUSTRY,
DEPARTMENT OF AGRICULTURE

GROWTH OF DIVERSIFICATION

The year 1933 has marked the beginning of a definite change in livestock production in the United States. As yet the crop adjustment programs have touched only one class of livestock directly; namely, hogs. However, a powerful indirect effect will be a tendency toward diversification with all classes of domestic animals and poultry on the tens of millions of acres that are being taken out of cotton, wheat, corn and other harvested crops. Eventually there will be a shifting of all kinds of agricultural production to the most productive lands. Immediately there is taking place, through sudden availability of grass and other forage crops on all types of lands, a shift from intensive to extensive methods of growing and fattening our animals for market. As an extension worker in the South recently put it: "For 50 years we have been talking diversification with livestock. We knew we had the facilities for doing it, but for various reasons we did not choose to do it. Now comes the adjustment program, reducing our cotton acreage and providing us with the land, the time and the incentive to grow the food and feed we need ourselves—to farm as we should have been farming all this time. The advantages of this balanced program will have a lasting effect on many of us."

GRASS REDUCES LIVESTOCK PRODUCTION

Contrary to a rather general belief, the taking of extensive areas of land out of corn, wheat and cotton and putting them into grass to be grazed will likely decrease rather than increase the supply of meat, milk and wool. The chief reason for this is that land in harvested grain and forage crops produces at least twice as much livestock feed as the same land in pasture. Since 1890, when the cattle population, the acreage of grazing land and the productiveness of the western ranges in the United States were very near their peaks, farmers have reduced the acreage of grazing land about 10 per cent and increased the acreage of harvested crops by at least 50 per cent. This increase in cultivated land has been largely responsible for increasing the production of pork and milk approximately 50 per cent. At the present time 70 per cent of the total crop land in the United States is used for livestock food. Therefore, a reduction in the total crop area of 20 per cent uniformly applied to the total area, and the conversion of this 20 per cent to pasture would decrease livestock production from the crop land area by 6 per cent.

NEED FOR CURBING HOG SUPPLIES

Meanwhile the supplies of most classes of livestock and their products are mounting to levels that are bringing ruinous prices to farmers. With hogs, the great decrease in the export market has been chiefly responsible. In 1919, of each 50 hogs marketed in the United States, thirteen were sold to Europe. By 1933 this average of thirteen had shrunk to three although total production remained about the same. As this is written some improvement in exports is being shown so that for the first 11 months of the 1932-33 marketing year pork shipments were 2 per cent larger and lard exports 6 per cent larger than in the corresponding period a year earlier. An emergency hog supply reduction program has helped some, bringing to market a total of more than 6,000,000 pigs weighing less than 100 pounds and over 200,000 piggy sows weighing over 240 pounds during the period of Aug. 23 to Sept. 29, 1933. This is being followed with a combined corn-hog reduction program which contemplates reducing corn acreage one-fifth and hog supplies a fourth.

INCREASE IN BEEF CATTLE NUMBERS

The upswing in beef cattle numbers which began in 1928 is continuing with an annual output of cattle and calves now equaling the largest yearly slaughter of such stock on record; and beef prices continue exceedingly low. The prospect during the next 12 months is more promising for cattle feeders than for cattle producers for the reason that market prices of stockers and feeders are now at the lowest point in many years and, for some kinds, are near the lowest on record, while transportation and marketing costs are relatively the highest on record. The only hope for the cattle industry's return to a sound production basis seems to lie in substantial reduction in the number of breeding animals.

DECREASE IN SHEEP NUMBERS

Having reached a peak in 1931, following a stretch of nine years in which they increased more than 45 per cent, sheep numbers in the United States and throughout the world appear to be on a downward trend. The 1933 lamb crop in this country was approximately 750,000 head or 2.5 per cent smaller than the 1932 crop and the smallest since 1929. Nearly all of this decrease was in the western sheep states, and was due both to a decrease in lamb crop per 100 ewes and to a decrease of 592,000 in the number of breeding ewes. Poor range conditions, prospect of feed shortage for the coming fall and winter, and difficulties of financing are expected further to decrease flock numbers in the West.

EGGS AND POULTRY

The chief discouragement in the egg and poultry situation is the large storage holding of each on hand. Although about equal to the 5-year average just completed, the 7,468,000 cases of eggs in storage Oct. 1 represented an increase of 52 per cent over the storage stocks of a year ago. Stocks of dressed poultry on the same date this year were 51,156,000 pounds compared with 36,683,000 a year ago, and 49,077,000 for the 5-year average. There was but little change in the number of hens and pullets of laying age reported on farms Oct. 1, and the production per bird and per flock was considerably less. The market, therefore, stands to be greatly strengthened by increasing purchasing power. Stocks of frozen turkeys on hand are small, and the forthcoming season promises supplies approximately equal to those of last year with very reasonable prices.

ANIMAL HUSBANDRY RESEARCH

The year was productive of some significant findings in animal husbandry research. Record-of-performance studies which are now under way at a number of state and Federal statio
were given encouragement by pu
lished findings of the division of b
chemistry of the University of Min
sota Station which present eviden
gathered in studies with rats, the h
itable factors influence the efficien
of food utilization. In performan
studies with beef shorthorns at t
U. S. Animal Husbandry Experime
Station at Beltsville, Md., purebr
cattle of similar type, of close re
tionship and fed alike on the sa
feeds varied in the pounds of be
produced from 100 pounds of tot
digestible nutrients from 14.3 to 22
The more efficient producers were n
necessarily the poorest in qualit
There is basis, therefore, for the b
lief that breeding and selection bas
on performance studies can produ
superior strains.

A summary of 10 experiments co
ducted over a period of several yea
by the Federal department in coöper
tion with the Louisiana, Virginia a
West Virginia experiment statio
shows that beef from 2- and 3-year-o
cattle fattened on good pasture alo
is almost as desirable in palatabili
as beef from cattle fed grain whi
on grass. The grain-fed cattle showe
a higher dressing percentage and we
somewhat fatter. The results indica
that grass as a feed does not necessa
ily produce an inferior quality of bee
but that lack of finish or gain due
poor or insufficient pasture is ofte
the cause of low quality that is fr
quently attributed to grass-finishe
beef. The finding is especially sig
nificant in view of the greatly i
creased acreage of pastures and fo
age crops likely to take place at onc
in the United States as a result
crop adjustments.

NEW RESEARCH FACILITIES

This report would not be complet
without mention of an allocation
$1,750,000 of funds, as a part of th
public works program, for improve
ment of research facilities at Belts
ville, Md.; Miles City, Mont.; Dubois
Idaho; Jeanerette, La.; Brooksville
Fla.; McNeill, Miss.; Glendale, Ariz
and Middlebury, Vt. At all of thes
stations the animal husbandry researc

is coöperative with various state experiment stations in the region, and the problems studied are only those regional or national in scope. Large-scale planning and construction of such facilities in one period of building is a great advantage in conducting fundamental studies involving long-time effort, for the reason that interruptions and changes in experimental conditions are prohibitive of conclusive results. It is felt that the improved facilities will permit an economy and thoroughness in research more nearly compatible with the needs of the many coöperative projects with states and other agencies which center at these Federal stations.

THE DAIRY INDUSTRY

By L. S. Richardson

Bureau of Dairy Industry, Department of Agriculture

DAIRY PRICES

After 3 years of declining prices, farm prices for dairy products reached a low in March, 1933 of 59 per cent of the 1910 to 1914 average. In 1929 prices were 140 per cent of the 5-year average, in 1930 they had fallen to 123 per cent, in 1931 to 94 per cent, and in 1932 they were 70 per cent of the 5-year average. From the low of 59 per cent in March and April, 1933, prices began to recover and by October they were 78 per cent of the 5-year average. Although the dairy industry during the first 10 months of 1933 continued in a relatively strong position as compared to other types of farming, conditions toward the end of the year indicated that the comparative position was becoming less favorable for dairying. In October stocks of dairy products in storage were of record proportions, the rate of consumption was low, record numbers of cows were being milked, and it was more profitable to use feed for milk production than for meat production because of the low prices for meat animals. Under these conditions the apparent strength in dairy prices was due to the price-supporting measures applied.

RELIEF MEASURES

Milk Marketing Agreements.—Soon after the Agricultural Adjustment Act was approved in May, steps were taken to develop a national program of relief for the industry. The Act authorized the Government to use two methods of bringing milk and butterfat prices to pre-war purchasing power. One was milk-marketing agreements, the other was milk-production control. The first portion of the program—the formation of marketing agreements covering the various fluid milk areas—was well underway at the end of the year. The first milk-marketing agreement put into effect was for the Chicago milk shed. By November agreements covering practically all the major milk sheds had been approved or were in the process of preparation. In most areas milk marketing agreements between producers and distributors had been in operation for years. The new agreements, however, represent a distinct advance in that there is legal authority to enforce the provisions for adjusting production, for fair margins, and for fair prices to producers and consumers alike.

Federal Surplus Relief Corporation. — An outstanding emergency measure of importance to the entire dairy industry was the formation of the Federal Surplus Relief Corporation. Through this agency, surplus dairy products were being removed from the market and distributed to the 3,500,000 families on relief rolls throughout the country.

Production Control.—The second part of the National program—production control—was still in the ormative stage in November. Progress had been made, however, in that the Secretary of Agriculture had announced that benefit payments would be made to dairy farmers who cooperate in a production-control program. The funds were to be obtained by means of a processing tax on dairy products. Various proposals for restricting production were being considered, among them the possibility of reducing the number of milk cows through a testing and culling program, the possibility of limiting the amount of dairy products marketed, and limiting the amount of milk sold from the farm on an allotment or quota basis.

DAIRY RESEARCH

Milk Production Cost.—The current problems of the dairy industry to a large extent were being attacked through emergency measures. It is generally agreed that the dairy farmer will need to reduce the amount of milk produced and sold in order to reestablish a stable market. Adjusting the production to the current demand, it was thought, would result in higher prices which would compensate the farmer for reducing his total output of milk. But it would also be advantageous to the producer if he could lower his cost of production at the same time he lowers his output of milk, thus creating an even wider spread between his cost and his returns. Recent research work by the Bureau of Dairy Industry indicates that it would be possible on many farms to lower the cost of milk production by changing the farming and feeding system to one in which the farmer would keep most of his land in legumes and pasture grasses, and grow very little if any grain. The pastures would be the basal ration and he would feed grain only when he could obtain it cheap enough to pay for the extra milk yield.

Feeding experiments have indicated that cows fed nothing but roughage will produce about 70 per cent as much milk as when they are fed a full-grain ration, and that they will produce about 93 per cent as much milk when fed a limited-grain ration as when fed a full-grain ration. Usually the necessary feed nutrients can be grown so much cheaper in the form of roughage than in the form of grain that the farmer who grows all his feed for his cows will make more money if he grows it and feeds it in the form of roughage. The cheaper cost of the roughage will more than offset the reduced milk yield, especially when dairy products are low. Growing and feeding good quality roughage was suggested as a practical means of slowing up production of dairy products and at the same time increasing the profits of the producer.

Pasture and Roughage Quality.—Because of the economy of feeding roughage for milk production the Bureau has directed much of its research work toward improving the quality of pastures and other roughages. Actual feeding experiments have shown that roughages are more nutritious and more palatable when cut in the early stages of maturity than if cut later and that they yield more protein per acre if cut in the earlier stages of maturity. Sudan-grass hay cut in the early stage of maturity and fed to cows at one of the Bureau's field stations proved superior to mature hay in all respects. In one experiment the amount of early-cut Sudan-grass hay consumed per cow was greater than the amount of good alfalfa hay consumed. Other experiments showed that pasture grasses cut in the earlier or immature stages contain an amount of protein that compares favorably with that in some of the high protein concentrates.

Hay or Silage.—The Bureau also found that cows can consume sufficient grass in the form of hay or silage, if it is cut at the right stage of maturity and properly cured or ensiled, to supply sufficient nutrients for maintenance and a yield of 35 to 45 pounds of milk a day. This work suggests the practicability of extending the use of pastures by harvesting a portion of the grasses in the flush season. When there is more grass in the early spring than the animals can consume by grazing the grasses could be cut and made into hay or silage for feeding later in the season or through the winter when grazing is not available, thus affording a means of conserving and feeding pasture grass in its most nutritious and palatable stage.

Grazing Tests.—The so-called rotation system of grazing dairy cattle, in which the cows are confined to a limited area of the pasture for a few days and then moved to another area, and so on until they have grazed over the entire pasture, is being tested at the Bureau's experimental farm in comparison with the ordinary continuous system of grazing. Rotation grazing in these experiments continues to give greater returns than continuous grazing. Two years' work in which two comparable plots of pasture grass were clipped periodically to heights of 1½ and 4 inches, respectively, showed greater yields of both green and dry matter from the closely clipped plot, thus indicating the desirability of close grazing when the animals are rotated from one pasture to another.

BREEDING PROGRESS

Proved Sires. — The Bureau's breeding program, in which attention is centered on the use of "proved sires" in the herd generation after generation, is gaining in favor. The Bureau has demonstrated that sires that have proved their ability to beget daughters, all or nearly all of which are better producers than their dams, can be used with greater assurance of success than untried sires. Each year an increasing number of such "proved sires" are being located in dairy herd-improvement association herds by comparing the production records of the daughters of a sire with the records of their dams. To date more than 15,000 sires have been partly proved in these associations.

Artificial Insemination.—But because outstanding sires are few and far between, it is important to the dairy industry that every effort be made to extend the usefulness of those sires that have proved to be really outstanding sires of high producing daughters. For that reason, the Bureau is studying the various problems involved in artificial insemination and in the preservation of bull spermatozoa. If spermatozoa could be kept alive for a period of several days, semen from a great breeding sire might be used to inseminate a large number of females or even be transported over long distances for such purpose. To date the Bureau scientists have been able to maintain the viability of spermatozoa for 82 hours under laboratory conditions.

UTILIZING BY-PRODUCTS

Lactose. — Economic conditions which tend to depress the prices of the major dairy products increase the necessity for turning byproducts of milk into revenue producing channels. The important constituents of these byproducts are lactose and casein. In the past year the Bureau has devised a method through which a grade of lactose satisfactory for technical purposes can be made with one crystallization rather than the two ordinarily required. This process permits the use of multiple-effect vacuum pans for concentration thus reducing the cost of manufacture still further. It is hoped that through the lowered cost the use of lactose for technical purposes may be extended.

Casein.—The work on casein has shown that the difficulty encountered by paper coaters as a result of foaming of the casein-clay mixture can be controlled by a minor adjustment in the method of making casein. It has been amply demonstrated that by complying with a few fundamental principles a casein suitable for all requirements can be made in American plants.

DISEASES AND PESTS OF ANIMALS

By John R. Mohler

Chief, Bureau of Animal Industry, Department of Agriculture

PROGRESS IN DISEASE CONTROL

Progress in the control and eradication of livestock diseases in the United States continued during 1933. Largely as a result of effective quarantine regulations the country remained free from various foreign livestock maladies that take a heavy toll in many other countries. With respect to communicable diseases already present in this country, definite progress was made in eradicating tuberculosis, scabies, tick fever, and others of less economic importance. Evidence of this progress in the elimination of diseases is shown in the reports of Federal meat inspection which includes more than 75,000,000 food animals. During the year only about 1.5 per cent of the animals inspected showed indications of disease or abnormality sufficient to cause condemnation of parts or entire carcasses.

TUBERCULOSIS

Progress made in the Nation-wide campaign to eradicate tuberculosis was especially gratifying. In the case of cattle, extensive tuberculin testing, together with the slaughter of animals found to be effected, is rapidly reducing the prevalence of disease. This work, which is conducted coöperatively with the states, has reduced the extent of tuberculosis among cattle from 4.0 to 1.4 per cent in the last 10 years, according to field surveys. Thus the prevalence of one of our most serious diseases of livestock has been reduced about two-thirds in the last decade.

During the fiscal year ended June 30, 1933, approximately 13,000,000 cattle were tuberculin tested, which is at the rate of more than a million a month. Approximately 77 per cent of the cattle were tested under the so-called area plan which, in general, provides that all herds in a county be tested and the reactors removed and slaughtered. When the extent of tuberculous infection among cattle has been reduced to 0.5 per cent or less, the county is officially designated as a modified accredited area. On Oct. 1, 1933, there were in the United States 1,675 counties so designated, which is more than 54 per cent of the counties in the country. In addition there were 286 counties in which eradication work was being conducted.

During 1933 three entire States—Nevada, New Hampshire, and Utah—were added to the list of modified accredited areas, which already included North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, and North Dakota. In recent years the campaign has been extended also to include the eradication of tuberculosis from swine and poultry.

TICK FEVER

Cattle owners of the South are coöperating with State and Federal officials in the eradication of the cattle-fever tick, the carrier of the serious cattle disease, splenetic or tick fever, which since Colonial days has handicapped the development of a profitable cattle industry in the South. This tick, which originally infested 15 Southern and Southwestern States, has been eradicated from all but three. The only areas in continental United States now under Federal quarantine because of the presence of cattle-fever ticks are in Florida, Louisiana, and Texas. In these States eradication work is in progress and results in additional territory being added to the tick-free areas in December of each year, when the quarantine restrictions are lifted by the issuance of a Federal order.

The knowledge of the part this species of tick plays as a disease carrier, its life history, and methods effective in its eradication were developed through extensive scientific research and experimental work. The eradication method in general use is the dipping of ticky cattle, horses, and mules in an arsenical solution of tested strength. The dipping is repeated at regular intervals, over a period of time sufficient to destroy all ticks that may be on the animals thereby arresting the life cycle of the parasite. This procedure results in the eradication of ticks from the areas so treated, and they may then be released from Federal quarantine. As a result of the improved conditions, profitable beef and dairy industries have arisen in the tick-free areas, a development that was impracticable in tick-infested territory.

SCABIES

In the eradication, from sheep and cattle, of the parasitic disease known as scabies, material progress also has occurred. Through the coöperation of

State officials and livestock owners, all the range areas in the region lying to the north and west of Nebraska, Colorado, New Mexico, Arizona, Texas, and Oklahoma are free of sheep scabies. In Colorado, Arizona, and Kentucky the infection has been reduced to a few very small areas. Cattle scabies has been eradicated from all previously infected States to the north and west of Wyoming, Colorado, and New Mexico; and also Texas and Oklahoma to the eastward are practically free of infection. All infections of cattle scabies are now confined to four States.

BANG'S DISEASE

Scientific investigators of the Department, both independently and in coöperation with eight State universities and experiment stations, are studying methods of control for one of our most serious livestock maladies, Bang's disease, also called infectious abortion. Experiments with vaccines, in which cultures of low virulence were used during calfhood, have given further evidence to justify the belief that vaccination can be made a safe and effective aid in controlling the malady in cattle. The breeder, however, should bear in mind that sanitary management in herds is a practical means of preventing animals from becoming exposed to the infection.

HOG CHOLERA

Although hog producers were threatened with a serious wave of hog cholera during 1933 because of unfavorable hog prices and resulting failure on the part of many growers to give their herds the preventive-serum treatment, the losses from the disease were fortunately below normal. The number of reported outbreaks during the 12 months ended Sept. 30, 1933, was 4,987, or about a fourth less than for the previous 12 months and considerably less than for the average during the last five years. Because of the sporadic character of hog cholera and its habit of spreading rapidly with highly fatal effect among susceptible swine, this disease is potentially a cause of serious loss. It is readily preventable however, by the use of anti-hog-cholera serum. This product is being produced commercially on a large scale in establishments licensed by the Bureau.

RESEARCH

Besides conducting the prominent activities mentioned, the Bureau of Animal Industry carries on investigations to determine the extent and cause of losses from many other diseases and pests of livestock, in the endeavor to develop methods of combating them most effectively. In the case of parasitic diseases, methods of control or eradication are usually aimed at some stage in the life cycle of the parasite when it is least resistant.

Various kinds of poisonous plants that cause serious losses to stockmen, especially in the range areas, have been under investigation. Research work on poultry diseases is aimed principally at the development of improved methods for combating roup, coccidiosis, tuberculosis, pullorum disease, and infectious bronchitis of domestic fowls and blackhead of turkeys. The results of completed research are available in published form so that livestock owners may familiarize themselves with best procedures for prevention, control, and eradication. Accurate knowledge concerning animal-disease problems has tended to lower production costs and, in many instances, has added to the quality and salability of livestock products.

DISEASES OF PLANTS

By Neil E. Stevens

Bureau of Plant Industry, Department of Agriculture

DISEASE CONTROL

For severity of a variety of diseases on numerous plants the season of 1933 is without parallel in recent years.

This condition, combined with a reduction in state and Federal research funds, has tended to direct the attention of professional plant pathologists more definitely toward questions of practical disease control. The outstanding activities in this field during the year have been large-scale attempts at disease control by eradicating the alternate host of a causal fungus. The campaigns for the control of the white pine blister rust by eradicating currants and gooseberries and for the control of stem rust of wheat by eradicating barberries, are now being prosecuted on a much larger scale than formerly.

DISAPPEARANCE OF EEL GRASS

Surpassing in biological interest though probably not in economic importance any plant disease phenomenon of the year is the virtual disappearance of the common eel grass from the Atlantic seaboard of North America and several European countries. This well-known plant, *Zostera marina,* under normal conditions, grows in dense masses on mud flats which, at low tide, are barely covered with water, but at high tide are covered to a depth of several feet. In midsummer of 1931 it was noticed in many localities that the eel grass leaves broke off and washed ashore in great numbers. Midwinter brought to the U. S. Biological Survey reports that geese and brant were starving in the Pamlico Sound area. Investigation showed that eel grass, which forms the chief winter food of brant and an important part of the food of Canadian Geese, had practically disappeared from these waters. By the spring of 1933 eel grass had largely disappeared throughout its range from North Carolina to Gaspe. Its general diminution along the whole Atlantic coasts of France and Holland was noted during the winter of 1931-32. This summer reports of its scarcity on the coast of Devon and in the Thames estuary came from England.

The economic effects, largely indirect, of the change are becoming more evident as time goes on. Eel grass has long been used in New England and Nova Scotia for insulating and packing material. Its importance as a food for brant and geese was noted above. In England, unless the swans are artificially fed, they forsake the swaneries. Small fish suffer as their best cover is removed. Serious erosion is noted in certain places, following the death and disintegration of the matted rhizomes. Some French investigators attribute the change to a bacterial disease but American investigators have thus far failed to confirm these findings.

DUTCH ELM DISEASE

The elm plays a large part in American culture and tradition. Immediate popular interest, almost consternation, resulted from the announcement last July of the discovery of the so-called Dutch Elm Disease on over 50 trees in 14 New Jersey towns and cities. The disease derives its name from the fact that it was first noticed in the Netherlands. Since its discovery in 1919, it has caused widespread death of elms not only in Holland but in Belgium, Germany, France, and Great Britain. A minor infection in Ohio, discovered in 1930, has apparently been successfully eradicated. Federal and state authorities are now engaged in the double task of surveying for its range in the eastern United States and eradicating the disease. Up to Oct. 15, over 500 infected trees had been found in New York and New Jersey, and one in Connecticut near the New York State boundary. All these diseased trees were within 75 miles of New York City, and over 75 per cent were in Essex County, New Jersey. A possible means of entry of the disease into this country was indicated by the discovery that elm logs imported from France for veneer purposes carried both the fungus causing the disease and the beetles believed to transmit the fungus. The importation of elm logs is now restricted by quarantine.

BACTERIAL WILT OF CORN AND TOBACCO DOWNY MILDEW

The two outstanding diseases of last year (AMERICAN YEAR BOOK, 1932, p. 419), were both more widespread than in the previous season but the actual losses were so reduced by adjustments that they may actually be less than last year. Bacterial wilt of corn was in general earlier in appearance, more widespread in a number of the states, and ranged farther north than in any previous year, reaching even to New Hampshire and Maine. Experienced observers in New Jersey, Pennsylvania, and Ohio report that in spite of wide distribution of the disease and very high losses in susceptible varieties, the average loss was 25 to 30 per cent less than last year. This change is in large part due to the rapid replacement of the very susceptible early yellow sweet corns with more resistant white sweet corns and by various less susceptible, recently developed varieties, strains, and hybrids of which Golden Cross Bantam is the most notable.

Tobacco Downy Mildew was general over the Atlantic States from Florida to Maryland. This year it was found for the first time west of the Appalachian Mountains, being widespread and destructive in twenty-two counties of Eastern Tennessee as well as in Southwestern Virginia. As yet no specific control for the disease has been discovered but commercial losses have been greatly reduced by the general practice of growers in planting an excess number of beds.

HEAVY DISEASE INCIDENCE IN NORTHEASTERN U. S.

Throughout the area east of the Mississippi and north of the Gulf States losses from a large number of diseases of cultivated plants have been unusually heavy. Well known diseases such as scab, cedar rust, and black rot of apples; brown rot and leaf curl of peaches; black rot of grapes; early blight of celery; leaf spot of strawberries, and many others have been unusually severe. This condition is believed by some pathologists to be associated with unusually warm wet weather in early spring favorable to the development of parasites, followed by weather in June so dry as to be injurious to the host plants. It is probable that neglect of control measures, due in part to the economic plight of the growers, has also played a part.

INSECT PESTS

By James A. Hyslop

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WEATHER CONDITIONS

The winter of 1932-33 was generally mild. Spring and summer rainfall was well distributed in the eastern states but decidedly deficient in the Great Plains region, reaching drought conditions over considerable areas. The year was characterized by an unusual number of tropical hurricanes along the Atlantic seaboard.

GRAIN PESTS

Grasshoppers. — Grasshopper eggs were found to have sustained a very low mortality, and in the Dakotas, eastern Montana, and Minnesota, the emergence was as great as the surveys of the preceding fall had indicated. In the Great Plains region the infestations were so heavy this fall that with favorable weather conditions severe outbreaks will develop next year.

The European Corn Borer. — The situation has not changed materially during the year. However, specimens were found in additional territory in eastern Wisconsin.

The chinch bug wintered successfully throughout the greater part of its range. Large populations seriously affected crops from eastern Kansas, northern Missouri, and southern Iowa, eastward through central Illinois and Indiana into southern Michigan and western Ohio. During late September and October vast flights were observed and outbreaks are imminent, at least in the eastern part of the chinch bug belt.

Hessian Fly.—Damage by the Hessian fly was slight throughout most of the winter wheat belt, and such field surveys as have been made in the East Central and Middle Atlantic States indicate that the infestation there next year will be lighter than it was this year.

Cutworms were generally prevalent throughout the early part of the year. Towards the end of June armyworm outbreaks were reported from Indiana and Tennessee eastward to Pennsylvania and Virginia.

Corn Worms.—The corn ear worm appeared in greater numbers in the Mississippi Valley region and in Texas than it has for many years. Late in the season it was quite generally reported as destructively abundant throughout the entire country east of the Rockies. During July the lesser corn stalk borer appeared in large numbers and damaged corn and sugarcane throughout the gulf region.

The alfalfa weevil was very abundant in Utah, western Nevada, and south-western Oregon, scarce in western Idaho and California, and normally abundant elsewhere.

COTTON PESTS

Boll Weevils.—Few boll weevils survived the winter of 1932-1933 in Oklahoma, Arkansas, and Northern Texas. In Louisiana weevils were so abundant in the fall of 1932 that even though less than one-fourth of one per cent survived hibernation, they were considerably above the normal. The survival was higher than normal east of the Mississippi River and much higher than the normal in the Atlantic States. Hot dry weather in June and July greatly reduced the population in most of the states. In general the loss will be less than in 1932 but probably greater than in 1930 and 1931. At present boll weevils are about as abundant as they were a year ago.

The pink boll worm had not reappeared in the counties in northern Florida in which the insect was found last season, up to the time of the preparation of this report (November 1). A very few specimens, however, had been found in Madison County, Florida, and at two points in southern Georgia. No trace of pink boll worm was found this year in the Salt River Valley of Arizona. However, specimens were discovered in Gaines, Terry, and Dawson Counties, Texas, near the New Mexico border.

Cotton Leaf Worm.—During September and October the cotton leaf worm was reported in all of the Cotton States between Alabama and California. In some regions the only cotton that was not completely defoliated was that to which insecticides had been applied. The amount of damage varied greatly depending on the maturity of the cotton.

The cotton flea hopper caused more loss in Texas during 1933 than any other cotton insect. It was very abundant this fall and will probably be even more abundant next year over large areas of Texas.

JAPANESE BEETLE

The Japanese beetle appeared in smaller numbers throughout most of its range in the northeastern states than it has in recent years, but injury was somewhat intensified in a few limited districts, such as northern New Jersey and on Staten Island, N. Y. The quarantined area now extends from Norfolk and Fredericksburg, Va., and Pittsburgh, Pa., thence northeastward to include southern Vermont and New Hampshire. Outside of this area the beetle was discovered in what are apparently established infestations at Waterville and Portland, Me., Keyser, W. Va., and a number of points adjoining infested territory in Maryland.

FRUIT PESTS

Fruit aphids in general were scarce. The rosy apple aphid, however, developed into troublesome numbers during late May along the Atlantic Coast from New York to Virginia. The green citrus aphid appeared late in February in the Florida peninsula. Although it did considerable damage, the outbreak was not so severe as outbreaks of recent years.

Plum Curculio.—Damage by the plum curculio was about normal in the Middle Atlantic States. In the peach districts of Georgia and Arkansas the emergence of the overwintering brood was lighter than usual, and, owing to the very dry weather at the time of emergency of the summer brood, damage was negligible.

Coddling Moth populations were generally heavy. Considerable late injury occurred throughout the northeastern quarter of the United States.

Mexican Fruit Fly.—The Mexican fruit fly situation in the Lower Rio Grande Valley of Texas showed a material improvement, only 6 specimens of adults and no larvae being found during the twelve months ending June 30, 1933, as compared with 28 adults, 11 pupae, and 2,357 larvae during the previous year.

VEGETABLE PESTS

The Mexican bean beetle was found in northern Florida and southern Mississippi. This is the first definite expansion of the infested territory southward. It was also found in the St. Paul district of Minnesota. This is believed, however, to be a commercial jump, as much of the intervening territory is not known to be infested.

The vegetable weevil was found at Clemson College, S. C. This is the first record for this State and the northeastermost record for the insect.

Potato Beetle.—Severe infestations of the Colorado potato beetle were reported from the New England States westward to North Dakota and eastern Wyoming. The insect was more numerous than it has ever been before in the Yakima Valley of Washington and in northern Utah.

The potato leafhopper and the resulting hopperburn were quite generally prevalent from the Middle Atlantic States westward to Iowa and Minnesota.

TREE PESTS

Gipsy Moth.—A gipsy moth outbreak was found in the anthracite coal-mining region of Pennsylvania in the summer of 1932, and progress is being made toward its extermination. In the New England States, defoliation was severe during the summer, increases in numbers having been noted in New Hampshire and Rhode Island. Cranberry plants in bogs in the Cape Cod district were damaged. A few egg masses were also found in New Jersey somewhat north of the former infestation in that State and efforts are being made to complete the cleanup.

Southern Pine Beetle.—The most serious outbreak of the southern pine beetle since that of 1893 occurred in southern Pennsylvania, western Maryland, and northern Virginia.

LIVESTOCK PESTS

Screw Worm.—A serious outbreak of the screw worm developed late in the season in southern Georgia and northern Florida. This is the first serious infestation by this livestock pest in the southeastern states. In Mississippi the insect was troublesome and in Texas it increased enormously during the latter part of the season.

AGRICULTURAL MARKETING

By Frederick V. Waugh

Bureau of Agricultural Economics, Department of Agriculture

FACTORS IN FARMERS' PURCHASING POWER

During the depression, farm incomes and the purchasing power of the farmer were greatly reduced. Three factors made the loss in farmers' purchasing power especially severe. First, the volume of agricultural production was maintained at approximately the 1929 level, while non-agricultural industries reduced their output to meet the lowered demand and thus were able in some degree to maintain prices. Second, the operating margins of processors, distributors and dealers handling agricultural products were not lowered in proportion to the drop in city retail and wholesale prices, with the result that the percentage drop in farm prices was much greater than the percentage drop in prices to city consumers of the same commodities. Third, restrictions to international trade such as high import duties and low quotas greatly reduced the export market for many agricultural commodities. Moreover the cost of production did not drop in proportion to incomes. Gross income declined 57 per cent from 1929 to 1930 while prices of things bought by farmers declined 30 per cent.

Many plans have been discussed during the past few years for restoring farm purchasing power. The Federal Government, after attempting such a restoration through the Federal Farm Board, is now engaged in another program which is frankly admitted to be experimental. This new program and its being put into operation are undoubtedly the most important new developments in the marketing of agricultural products in 1933.

THE AGRICULTURAL ADJUSTMENT ACT

The Agricultural Adjustment Act was approved May 12, 1933. Some of its most important provisions are briefly as follows: (1) The policy is declared to be "to establish and maintain such balance between production and consumption of agricultural commodities, and such marketing conditions therefore, as will reestablish prices to farmers at a level which will give agricultural commodities a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of the base period." The base period is designated as August, 1909 to July, 1914, except in the case of tobacco where the base period is August, 1919, to July, 1929. (2) Provision is made for agreements between the Secretary of Agriculture and producers of basic agricultural commodities for limiting acreage or production and for the payment of rents or benefits to producers making such reductions. To obtain revenue to pay such rents or benefits, processing taxes can be levied on the first processing of the commodity (for example a tax on the milling of wheat). (3) The Secretary of Agriculture can also make marketing agreements with processors, associations of producers, and others engaged in the handling of agricultural products, and can issue licenses permitting individuals to engage in such business. Thus the Act provides for raising farm prices by reducing production or by regulating marketing.

THE AGRICULTURAL ADJUSTMENT ADMINISTRATION

The Agricultural Adjustment Administration has proceeded to put the Act into operation. The acreage of cotton and tobacco harvested in 1933 was reduced by voluntary coöperation of the growers. These growers received benefit payments for the cotton land and the tobacco land taken out of production of the crops, and processing taxes were levied to provide revenue. Similar plans have been made for reducing the production of wheat, corn, and hogs during the coming year and processing taxes are now being collected to pay benefits to producers of these commodities.

Marketing agreements have been approved and are now (November, 1933) in effect on a large number of agricultural commodities; for example, milk, tobacco, rice, and many fruits and vegetables which are marketed both as fresh and as canned foods. While the regulation of production by benefits from processing taxes apply only to the "basic" commodities — (wheat, cotton, field corn, hogs, rice, tobacco and milk and its products) — the marketing agreements can be applied to any agricultural commodity. They are being used to bring about more orderly distribution, to eliminate unfair practices in the trade, and in some cases to regulate prices.

THE FEDERAL EMERGENCY RELIEF ADMINISTRATION

The Federal Emergency Relief Administration has also brought about important changes in the marketing of agricultural products during the past year by purchasing surplus commodities for distribution among the unemployed through the Federal Surplus Relief Corporation. This program of relief is designed to fit in with the production control program to reduce gradually the surplus stocks of agricultural commodities to be sold in both the domestic and the foreign markets and utilize it outside the regular channels of distribution.

IMPROVEMENT IN PRICE SITUATION

From March to July 1933 farm prices increased from an index of 50 (per cent of the 1910-1914 average) to 76; or an increase of 52 per cent. During August and September prices fell somewhat and during the middle of October stood at 70, or 8 per cent under the July level and 40 per cent above the March level. Prices of things bought by farmers increased rather steadily from March to September. The October level is the same as the previous month which may indicate that the end of the advance has been at least temporarily reached. From March to October prices of things farmers buy advanced from an index of 100 to 116 or an increase of 16 per cent as compared with the 40 per cent rise in farm prices from the extremely low level of last March. The purchasing power of farm products is still very low, however. A representative list of farm products sold last March would buy only 50 per cent of the amount they would buy during the 1910-1914 period. In October they would buy 60 per cent as much. During the same period from March to October the index of city retail food prices rose from 90 to 107; an increase of 19 per cent. This increase in prices to consumers was at least partially offset by increased wages and employment in many industries.

The percentage rise in farm prices has been much greater than the percentage rise in city wholesale and retail prices for the same reason that the percentage drop was greater during the down swing of the depression. The reason is that dealers' margins are relatively fixed and when city prices come down dealers' margins are not reduced proportionally. Neither do they go up proportionally to increased prices. The spread between farm and city retail prices of representative foods was gradually reduced from 1929 to early in 1933, but now shows a tendency to increase, due in part to processing taxes and increased costs of operation under the codes and in part to the fact that recent margins have in many cases been so low as to cause financial losses to dealers.

The income of farmers in 1933 will be higher than in 1932, both because of somewhat higher prices and because of benefit payments made to farmers who have taken part in programs of production adjustment. The incomes of farmers growing cotton, wheat, tobacco, corn and hogs will be materially increased by such benefit payments. In some other areas the incomes of farmers will be increased as a result of marketing agreements.

The increased prices of farm products since early in 1933 are due mainly to three causes: first, the depreciation of the dollar in foreign exchange which meant that cotton, wheat, and other export commodities brought more dollars in foreign markets even when their value in foreign currencies was unchanged; second, smaller supplies of some commodities such as wheat and potatoes, and some improvement in consumer buying power.

TRENDS IN MARKETING

The new agricultural relief program has made a great change in the agricultural marketing picture. It calls for regulation and planning both in the production of goods and in their distribution and sale. Not only are the producer and the dealer affected by such regulation. The consumer also has a decided interest since both the processing taxes and the expected reduction in production tend to raise retail prices of agricultural commodities.

Such regulation will undoubtedly make it necessary to gather and analyze a great deal of detailed marketing information which has not been formerly available. It will, for example, be necessary to have accurate records of the past and present acreages and numbers of livestock of individual growers; the amounts of agricultural products which are processed and the stocks and sales of individual processors, and the purchases, sales, and distribution of products by the many kinds of dealers. Much more detailed and comprehensive retail prices will be needed as a guide to proper regulation, and more adequate data on stocks and sales will also be needed.

Regulated marketing also is increasing the need for more adequate and uniform grades for agricultural commodities, particularly grades suitable for the retail trade which will give the consumer a simple, useful and accurate description of the qualities of goods offered at various prices. The widespread use of official standard grades in the wholesale trade has developed in large part since the war. In the retail trade the grading and labeling program has made less progress except in the case of a few foods (for example, beef, turkeys, and butter). With greater regulation of marketing this program will need to be developed both as a protection to the consumer and as a protection to the dealer against unfair competition in the form of substituting lower qualities.

Greater regulation in marketing conditions and practices may bring about some rather permanent changes in systems of marketing. It is too early to predict what these changes may be but in general they should lead to some improvement in efficiency and a lowering of the spread in price between the producer and the consumer.

NEED FOR MARKETING RESEARCH

The new situation in marketing agricultural commodities makes it necessary for research in marketing to be pushed vigorously. Also it will be desirable in many cases to make certain modifications or changes in emphasis in the marketing research program. Such changes would be desired to answer certain questions which are brought to the front by the new marketing program, such questions as the influence of regulated marketing on margins and costs, the incidence of such costs and of processing taxes, the influence of price increases on consumption of a commodity and on the consumption of competing commodities, and the relation of the general level of agricultural prices to the level of agricultural production.

HORTICULTURE

By William A. Taylor

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and

H. P. Gould

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GENERAL

In general, much the same conditions prevailed in 1933 as in 1932, including low prices for most horticultural commodities but with some improvement in certain directions. In some sections seasonal conditions, particularly low temperatures in the spring and storms of hurricane proportions later in the season, were severe and greatly reduced fruit and vegetable crops. Such occurrences, however, prevail in some of the horticultural crop producing regions in a considerable proportion of the seasons, but the production of most such crops is so widely distributed geographically that the danger of an acute country wide shortage in the supply of any one of them is comparatively slight. This is especially true in view of the abundance and the wide range in kind of fruits and vegetables produced and the comparative ease with which one may be substituted for another in the diet.

FRUIT

Peaches.—Spring frosts were particularly severe in some of the peach sections, causing practically a failure in most of the central states, while but 14 states in the entire country, according to official estimates, reported more than half a normal crop. Notwithstanding this reduction in the potential crop, the estimated yield was around 45,250,000 bushels. This was nearly 7 per cent larger than the unusually short crop in 1932, and about 20 per cent less than the average yield for 1926-1930.

Apples.—The forecast of total production on Oct. 1 was for 147,447,000 bushels, which was 5 per cent larger than in 1932 but about 13 per cent less than the average. Of this quantity, 82,713,000 bushels represented the estimated commercial crop. This is 4 per cent less than the corresponding estimate for 1932 and about 15 per cent less than the average. It represents 56 per cent of the total crop, as compared with 61 per cent in 1932 and 58 per cent, the average for the five years 1926-1930. The season of 1933 has been unusually adverse in many of the apple growing regions of the country because of the prevalence of insects and diseases and the difficulties experienced in their control. This applies in particular to the codling moth and the problems arising out of the use of lead arsenate in the control of this insect and the difficulties encountered in removing to the required tolerance the lead in the spray residue on the apples at harvest time.

Pears. — The October estimates placed production at 21,256,000 bushels, the crop having been progressively less each year since 1930 when it amounted to 25,633,000 bushels. The 1933 crop was generally short except in the Pacific Coast States. Normally about two-thirds of the pear crop is produced in California, Oregon, and Washington, but as estimated about 77 per cent of the crop this year was from those three states.

Citrus Fruits.—Obviously on a calendar-year basis citrus fruit crop reports involve parts of two crops. The prospective crops in the various states, however, for marketing in the 1933-34 period are in general somewhat reduced below 1932-33, and still farther below those in 1931-32. In most of the citrus producing areas, the fluctuations are traced to no more than incidental causes, but in Texas two tropical storms of hurricane violence which occurred during September reduced the grapefruit crop by an estimated 88 per cent. In Florida the same storms reduced the grapefruit crop by about 25 per cent, as estimated.

PECANS

The pecan, among the nuts commercially produced in the United States, holds a rather unique place because it is the only native nut that has been taken over from the wild, the choice individual trees propagated asexually, and extensively planted in orchard form. The 1930 census reported nearly 9,150,000 pecan trees, including those of both bearing and non-bearing ages, but that figure includes trees growing in the wild from which nuts are harvested, as well as those in planted orchards. The conditions in the six coastal states from North Carolina to Mississippi, which include most of the planted orchards, were unfavorable during much of 1933. Certain destructive insects and diseases were exceedingly difficult to control, and in many cases were not controlled. Drought conditions were also serious. The estimated crop in the above named states is about

17,000,000 pounds, somewhat more than the average for the 5-year period 1926-1930. The 1933 estimated yield, however, is more than double the crop of 1932. The 1933 crop from wild trees in Louisiana, Texas, Oklahoma, and other states, including also the harvest from the comparatively small number of trees in these states planted in orchards, was estimated in early November to be nearly 2½ times the crop east of the Mississippi River, or a total for all states of about 61,000,000 pounds.

VEGETABLES

Production.—As already indicated the wide geographic distribution of vegetable growing, both in the "winter garden" sections and the "main crop" sections, leaves little possibility of shortages that materially increase price returns to the growers of most vegetables during any considerable portion of the year. Surpluses, however, may at times reduce such returns. The most potent influence during 1933 on vegetable production over large areas was probably the occurrence of destructive temperatures during a cold wave Feb. 8-10, which was very widespread through the southern and southwestern early vegetable producing areas. Young vegetable plants were killed in vast numbers, or their development retarded. Extensive replanting was necessary. The result was delay in the beginning of the harvest period, even though ultimate production may not have been greatly reduced.

Potatoes.—A reduction in the size of the potato crop was reflected in the returns to growers, especially of the main or late crop, perhaps in a more marked degree than of almost any other vegetable product. While no definite comparisons of price returns can be made at present, there was an appreciable advance over those of 1932. The potato crop, including early and intermediate crops already harvested and the October estimates of the main or late crop, amounted to 307,382,000 bushels, 250,137,000 bushels of which comprised the late crop. The corresponding late crop figure for 1932 was 292,423,000 and the 5-year average (1926-1930) was 284,634,000.

MARKETING

Baskets vs. Barrels for Apples.—In marketing practices little of note has occurred during the year. The increasing use of splint or veneer bushel baskets in place of the barrel as a container for apples has been mentioned in a previous year. The completeness with which the bushel basket has superseded the barrel as a container east of the Great Plains, except for trans-Atlantic export, is conspicuously evident.

Use of Cellophane. — The use of cellophane in improving the appearance of packages of produce, or in protecting it against dust, or from deterioration due to exposure, is increasing. It is reported that forced rhubarb from western Washington was marketed during the past winter with cellophane protection, a sheet of this material being placed over the top of a crate before the lid was nailed on. The effect was pleasing to the eye, besides increasing protection from dust. Another practice involving the use of cellophane is the wrapping of individual heads of cauliflower in it. Cauliflower heads so wrapped are said to retain their freshness considerably longer than those handled in the usual way, and with an advantage in price favorable to this innovation.

Marketing Agreements.—The most conspicuous development in commercial horticulture during 1933 was the introduction of marketing agreements under which commodities are marketed on a nation-wide industry basis. This development is under the Agricultural Adjustment Administration. While it is too early to determine what the ultimate effect on the marketing of those horticultural products for which agreements have been adopted and approved by the Secretary of Agriculture will be, improvement in specific cases has occurred. Market agreements in effect as of Dec. 31, 1933 include those covering California canning peaches, Tokay grapes, Pacific Coast walnuts, California deciduous fruits (except apples), California olives, Northwestern tree fruits; also three separate state agreements for marketing citrus fruits, including a plan for national coördination of shipments. A considerable number of other agreements relating to important horticultural crops are in process of adoption or are under consideration, with definite progress already made in the working out of acceptable terms. These relate in part to the florist industry, nursery industry, early potatoes, California and Florida vegetables, raisins, beans, dates, fruits and vegetables used for canning, and many others. The marketing agreements under which California canning peaches, Tokay grapes, Northwestern tree fruits, and Pacific Coast walnuts were handled the past season resulted in substantial increases in prices received by the growers as compared with 1932.

PATENT PLANTS

The working of the amended patent law whereby new asexually propagated varieties of plants are included under it, was mentioned in 1931 and 1932. Up to Nov. 30, 1932, there had been issued 47 plant patents. That number on Dec. 31, 1933, had been increased to 84. The 37 patents issued since Nov. 30, 1932, include 15 roses, 4 chrysanthemums, 2 carnations, and 5 other ornamental plants; 2 each of apple and strawberry; 3 of peach; and 1 each of apricot, grapefruit, pecan, and blackberry.

FORESTRY

By Herbert A. Smith

Assistant Forester, United States Forest Service

THE FOREST INDUSTRIES

In commercial importance the lumber, pulp and paper, and naval stores industries lead the forest industries. In 1929 lumber had a value of $993,738,084; paper and pulp (with considerable duplication), $1,206,114,305; naval stores, $36,281,632. In 1933 the output of lumber may have a value, very roughly, of something like $240,000,000, and the 1932 value was less than $154,000,000. Naval stores (turpentine and rosin) are produced either (and chiefly) from pine "gum," or from stumps and "lightwood"—forest waste. Pulp and paper production also uses some waste material, and eventually will use much more. The pulp and paper industry of the United States imports from Canada and Europe approximately half of its wood, mainly in the form of pulp. Industrial forest use includes also firewood, railroad ties, poles, posts, piles, mine-props, cooperage stock, lath and shingles, etc., in a long list. Revised estimates of wood consumption in the United States, published by the Forest Service in 1933, drop fuel wood to second place in volume of wood normally consumed, with lumber outranking it. In the five years 1925-29 the average annual wood requirements of the lumber industry approximated 7.4 billion cubic feet of standing timber. Fuel wood accounts for more than 4 billion; the normal cut for domestic pulpwood approximates 0.6 billion, and that for all other purposes 2.4 billion.

THE LUMBER INDUSTRY

Production.—Data collected by the National Lumber Manufacturers' Association point to a lumber production for 1933 of about 13 billion board feet, equivalent to about 2.5 billion cubic feet of standing timber, as against 10.2 billion board feet in 1932 but a 38 billion annual average during the five-year period 1925-29. The South and the far West will furnish about 90 per cent of the 1933 cut.

Difficulties of the Industry.—Like agriculture, the lumber industry was in serious difficulties even in the years of general prosperity through over-developed productive capacity. The main seat of the trouble was in the Pacific Northwest Douglas fir region; the main root of it, a basis of capitalization and financing which looked for its profits to timber liquidation rather than permanent production. Carrying charges created pressure for early liquidation. Hence a greatly over-developed mill capacity, price instability and destructive competition, making a sick industry. As a cure, the industry has long sought control of production, barred by the anti-trust laws. As a palliative it has sought lessened carrying charges, primarily through more favorable tax laws. The industry deeply desires a yield tax, in place of the general property annual tax on standing timber. A tariff-protected home market and its enlargement through improved merchandizing methods and through research to open up new fields of use are other industrial objectives, though investments in Canadian timber divide the industry on the tariff question. In addition the industry objects strongly to extensive lumber operations in Government-owned timber on the National Forests and Indian lands unless so harmonized with private operations as to be brought virtually under industrial control; the viewpoint is that the liquidation of private stumpage should have the market to itself and public timber should await the later demand.

President Hoover's Timber Conservation Board (see THE AMERICAN YEAR BOOK, 1930 and 1931) afforded the lumber industry a greatly desired opportunity to seek Federal approval of a program looking to its relief along these lines, but the Board took no final action. Its work made clearer, however, that permanent rehabilitation of the industry will necessitate a means of establishing, with public authorization, some form of control of production, which in the interest of the public welfare must have definitely in view transition from an industry based on timber ownership for exploitation to one based on forest ownership as a permanent investment.

The Industrial Recovery Act opens a new prospect for control of this character. The act specifies as one of the purposes of Congress "to conserve natural resources." After its passage the President informed the representatives of the lumber industry that he trusted "any code relating to the cutting of timber will contain some definite provision for the control of destructive exploitation." The lumber code, approved by the President Aug. 19, embodies for the industry the principle of conservation and sustained production of forest resources.

PUBLIC AND PRIVATE FOREST OWNERSHIP

Government Holdings.—In March, 1933, the Forest Service submitted, in response to a Senate Resolution, the results of a comprehensive restudy of the whole forest situation entitled "A National Plan for American Forestry" (published as Senate Document 12, 73d Congress). The forest area and ownership showing was briefly as follows: Of 614.6 million acres of forest land in the continental United States, 494.9 million is available and suitable for commercial use. Eleven million acres in National Parks and other forms of reservation are withdrawn from commercial use; the rest is unsuitable for commercial timber growing. The Federal Government holds 88 million acres* of unwithdrawn commercial-forest land; states, counties, and towns 10.6 million; and private owners 396.2 million, of which 126.7 million is in farm woodlands. Of the Federal holdings 80.5 million acres are in the West; of the private, only 45.5 million. State and municipal ownership is nearly all in the Northeast, the Lake States, and the Northwest. In addition, tax-reverted state and county or town lands are rapidly accumulating in various regions.

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*Including 7.4 million acres on Indian reservations, administered by the Federal Government as trustee, and 74.7 million in National Forests.

Forestry Application.—Forestry is applied on 82.1 million acres of Federal (National Forest and Indian Reservation) lands. State Forests and parks under permanent administration embrace 7 million acres (not all open to or suitable for commercial use), and county and town 1 million. But of the 269.5 million acres of privately-owned commercial forest land, other than farm woodlands, only 21 million acres are handled under conscious effort to prolong productivity. A major conclusion is that private forest land ownership is extensively breaking down and for much of the land unlikely to be permanent. In transmitting the "National Plan," Secretary of Agriculture Wallace fully endorsed the recommendation that public agencies proceed to acquire 224 million acres of forest land, including a part of the abandoned agricultural land now available. He continued: "A considerable part of this land has or will come into public ownership anyway, by reason of tax delinquency . . . It is believed that the resources of the states will be fully taxed to acquire and manage 90 million acres, leaving 134 million for the Federal Government."

The National Forests had a gross area June 30, 1933, of 186.8 million acres and a net (*i.e.* Federally-owned) area of 162 million† acres—648,454 acres more than a year previously, of which 163,042 acres were added by purchase. Purchases to build up a system of National Forests in the East, begun in 1911, in 22 years totaled 4.5 million acres. In 1928 Congress authorized appropriations for accelerated progress, but as the depression advanced purchase funds were reduced, and for the current fiscal year were almost at the vanishing point. However, on May 20 President Roosevelt ordered $20,000,000 made immediately available. From then to December 31 purchases aggregating 1.9 million acres and obligating $3,788,845 were approved.

THE CIVILIAN CONSERVATION CORPS

The Unemployment Relief Act of March 31, 1933, authorized the President to provide for employing citizens on works of a public nature that would contribute to natural-resources conservation. By July 1, 240,000 single boys and young men from 18 to 25 years old had been enrolled, assembled, conditioned, equipped, and placed in 1,375 200-man camps, together with 35,000 older, experienced local men. This surpassed the speediest war mobilization record. The undertaking was organized under a "Director of Emergency Conservation Work" (Robert Fechner) with the Departments of Agriculture, Interior, Labor, and War as coöperating and executing agencies. Additional camps raised the total for the summer period to 1,468 and the enrollment to 299,375, including 25,000 war veterans but not including 14,000 Indians on their reservations.

Initially, a 6-month enrollment was provided for. The success and manifest usefulness of the undertaking resulted in another period, running to March 31. Exclusive of a special flood control project in Vermont, the winter camps comprise: National Forest, 439; National Park, 61; other Federal land, 43; State Forests and Parks, 522; private forest land, 224; erosion and flood control projects (mainly on Mississippi Basin farm lands), 111.

The Federal expenditures for the emergency conservation work to Dec. 31, 1933, will approximate $256,000,000. The objective throughout has been social as well as economic. A vast number of disheartened and undernourished youths unacquainted with regular work have been made over through body-building and morale-building occupation; of their cash allowance of $30 a month, from $22 to $25 or more has been allotted by them to afford relief to destitute relatives, and their work has built up new public values. This has been mainly in National and State forests and parks, where a greatly increased public investment for their protection, improvement, and development was badly needed. The National Forests alone call for very extensive work of this character, which has been going forward slowly for many years. Its acceleration was further speeded through other allotments of nearly $41,000,000 from the public works funds, and the Civil Works Administration program will accomplish a further advance.

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† Their commercial-forest acreage in the continental United States was given above as 74.7 million. This excluded the Alaska and Puerto Rico Forests, the non-commercial forest land, and open land.

FISHERIES

By Charles E. Jackson

Deputy Commissioner, U. S. Bureau of Fisheries

ECONOMIC FEATURES

The Outlook.—With continued limited consumption, low prices and costs of production decreasing less rapidly than prices, the fisheries of the United States have recently gone through a severe period in common with other foodstuffs industries. With national recovery plans in progress, greater organization of the fisheries and fishery industries being effected, and technological, scientific, and economic improvements of importance being established periodically not only by the Federal Bureau of Fisheries but also by the various state, private, and other agencies, better conditions may be expected for the future.

Production and Employment.—The fisheries of the United States and Alaska in 1931 yielded products aggregating 2,657,317 pounds, valued at $77,344,000 to the fishermen and gave employment to about 200,000 persons as fishermen and those engaged on transporting vessels and in primary wholesale and manufacturing establishments. Many thousands more were employed in connection with the fisheries in allied industries and in the retail fishery trade.

Imports and Exports.—Our foreign fishery trade in 1932 amounted to $37,403,000 of which $29,595,000 represents the value of products imported for consumption and $7,808,000 the value of exports of domestic fishery products.

MANUFACTURED PRODUCTS

Canned.—There were 343 establishments engaged in canning fishery products in the United States and Alaska during 1932. The total production amounted to 10,494,606 standard cases (416,062,406 pounds net weight), valued at $43,749,182. Salmon canned on the Pacific Coast, principally in Alaska, accounted for 5,908,969 standard cases (283,630,513 pounds), valued at $26,460,080. The production of tuna and tunalike fishes canned in California only, amounted to 1,206,177 standard cases (28,948,248 pounds), valued at $6,183,019. The output of canned sardines, which are produced in California and Maine, amounted to 1,499,678 standard cases (59,433,513 pounds), valued at $3,728,449. The other fishery products which were canned consisted largely of shrimp, clam products, and oysters.

By-products.—The production of fishery by-products during 1931 in this country was valued at $12,466,395. The more important products in this group consisted of fresh-water mussel-shell products, valued at $3,556,260; marine-pearl shell products, valued at $2,864,019; 101,738 tons of marine animal meal and scrap, valued at $2,406,506; 307,652 tons of oyster shell products, valued at $1,464,961; and 12,195,325 gallons of marine-animal oils, valued at $1,392,225. The remainder of the production of by-products consisted of liquid glue, pearl essence, kelp products, agar agar, shark skins and fins, and fish-scale ornaments.

Cured Products.—During 1931 the production of cured fishery products in the United States and Alaska amounted to 98,968,945 pounds, valued at $12,364,364. The more important cured products with respect to value were smoked salmon, including kippered salmon, amounting to 9,753,833 pounds, valued at $2,517,027; smoked cisco, chubs, and tullibee, 6,331,125 pounds, valued at $1,741,380; mild-cured salmon, 10,159,650 pounds, valued at $1,550,048; smoked sturgeon, 1,767,676 pounds, valued at $1,186,445; and boneless cod, 12,204,671 pounds, valued at $1,047,236.

Packaged Fresh and Frozen Fish.—Packaged fresh and frozen fish were prepared at 170 primary plants in 1932 which were operated in 15 states. The output amounted to 51,975,862 pounds, valued at $5,741,418. By far the most important single packaged fish was haddock which amounted to 33,401,425 pounds, valued at $3,356,535. While the fish were prepared in various manners before packaging, filleting was the dominant method of preparation, the production of fillets alone amounting to 49,228,247 pounds, valued at $5,401,887.

Frozen Products. — During 1932 freezing plants located in the United States and Alaska which reported their activities to the Government packed 92,471,545 pounds of frozen fishery products with an estimated value in the cold-storage warehouses of $7,000,000. The principal products frozen were mackerel, haddock, salmon, halibut and whiting.

NEW ENGLAND STATES

The fisheries of Maine, New Hampshire, Massachusetts, Connecticut and Rhode Island in 1931 employed 17,888 commercial fishermen whose catch amounted to 540,297,920 pounds, valued at $20,140,288, which is a decrease of 23 per cent in volume and 27 per cent in value as compared with the preceding year. In 1932 landings of fish by American vessels at Boston and Gloucester, Mass., and Portland, Me., amounted to 252,334,325 pounds, valued at $6,083,851, which is a decrease of 4 per cent in quantity and 34 per cent in value as compared with the previous year. The packaged fish industry in New England in 1932 produced products aggregating 41,692,685 pounds, valued at $4,241,685. In the same year the production of sardines in Maine amounted to 545,697 standard cases, valued at $1,370,050.

MIDDLE ATLANTIC STATES

In 1931 the commercial fisheries of New York, New Jersey, Pennsylvania, and Delaware employed 9,604 fishermen whose catch amounted to 164,898,737 pounds, valued at $9,211,180, or a decrease of 15 per cent in volume and 29 per cent in value as compared with 1930. During 1932 landings by fishing vessels at the ports of New York City and Groton, Conn., amounted to 35,601,941 pounds. In the same year 274 fishermen were employed in the shad fishery on the Hudson River, and their catch amounted to 159,358 shad with a total weight of 529,754 pounds and a value to the fishermen of $50,849.

CHESAPEAKE BAY STATES

The commercial fisheries of Maryland and Virginia in 1931 employed 20,689 fishermen whose catch amounted to 293,270,746 pounds, valued at $7,427,960, which is a decrease of 7 per cent in the catch and 35 per cent in its value as compared with 1930. Of this catch market oysters accounted for 32,310,846 pounds of meats, valued at $2,784,210, and crabs accounted for 64,516,690 pounds, valued at $1,192,988. The menhaden industry in Virginia in 1932 produced products consisting of scrap, meal, and oil, valued at $709,394. The shad and alewife fisheries of the Potomac River in 1932 employed 703 fishermen whose catch amounted to 2,264,168 pounds of shad, valued at $173,153 and 6,844,613 pounds of alewives, valued at $24,041.

SOUTH ATLANTIC AND GULF STATES

During 1931 the commercial fisheries of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas, employed 23,722 fishermen whose catch amounted to 289,309,501 pounds, valued at $8,081,934 or a decrease of 31 per cent in the volume of the catch and 27 per cent in its value as compared with the previous year. The production of canned shrimp in 1932 in this area amounted to 758,106 standard cases valued at $2,594,980, while the production of canned oysters amounted to 392,664 standard cases valued at $1,007,624. Sponges sold on the Exchange at Tarpon Springs, Florida, during the same year, aggregated 418,923 pounds, valued at $517,655.

PACIFIC COAST STATES

The commercial fisheries of Washington, Oregon, and California in 1931 employed 19,235 fishermen whose catch amounted to 597,306,512 pounds, valued at $13,512,209, or a decrease of 28 per cent in the volume of the catch and 41 per cent in its value as compared with the preceding year. During 1932 the pack of canned salmon in these states amounted to 654,460 standard cases, valued at $4,744,162; sardines, 953,981 standard cases, valued at $2,358,399; and tuna and tuna-like fishes, 1,206,177 standard cases, valued at $6,183,019. In the same year 21,841,000 pounds of halibut were landed at Seattle.

LAKE STATES

During 1931 the commercial fisheries of Lakes Ontario, Erie, Huron, Michigan, Superior, and Namaken Lake and Lake of the Woods and Rainy Lake in the United States and Canada produced 120,832,076 pounds of fishery products. Of the total, the United States accounted for 91,726,845 pounds, valued at $6,029,247. The catch in the United States was made by 6,839 fishermen.

MISSISSIPPI RIVER AND TRIBUTARIES

The commercial yield of the fishery products in the Mississippi River and tributaries during 1931 amounted to 82,382,523 pounds, valued at $2,897,357, which is a decrease of 22 per cent in the catch and 36 per cent in its value as compared with the catch and its value for 1922 when the latest preceding survey was made. Of the total catch in 1931, 44,061,714 pounds valued at $2,257,204 were fish and 38,320,809 pounds valued at $640,153 were shellfish (principally mussel shells) and miscellaneous products. The fisheries of the Mississippi River and tributaries during 1931 gave employment to 15,884 fishermen.

ALASKA

Fish Products.—The fisheries of Alaska during 1932 employed 8,059 fishermen. The catch in the round weight, exclusive of whaling, amounted to 598,855,651 pounds, valued at $6,971,324. The round weight of whales could not be determined, but their products amounted to 7,664,143 pounds, valued at $91,133. Of the total catch, exclusive of whaling, 452,536,052 pounds, valued at $5,765,501,

FISHERIES OF THE UNITED STATES AND ALASKA, 1931

Sections	Fishermen	Fishing vessels	Fishing boats	Persons on transporters	Transporting vessels	Products	
New England States.	17,888	706	8,874	323	118	540,298,000 lbs.	$20,141,000
Middle Atlantic States	9,604	525	3,882	244	29	164,899,000	9,211,000
Chesapeake Bay States	20,689	320	14,099	857	424	293,271,000	7,428,000
South Atlantic and Gulf States	23,722	603	14,437	727	182	289,309,000	8,082,000
Pacific Coast States	19,235	940	6,749	274	106	597,306,000	13,512,000
Lake States	6,839	505	3,236	19	9	91,727,000	6,029,000
Mississippi River States	15,884	......	14,546	29	8	82,382,000	2,898,000
Alaska	8,914	582	4,960	1,668	399	598,125,000	10,043,000
Total	122,775	4,181	70,783	4,141	1,275	2,657,317,000	77,344,000

consisted of salmon; 143,406,896 pounds, valued at $1,048,045, consisted of other fish; and 2,912,703 pounds, valued at $157,778, consisted of shellfish. There were 201 establishments (exclusive of duplication) engaged in the fisheries trade in Alaska in 1932. Of these, 105 canned fish, 88 cured fish, 11 manufactured by-products, and 52 handled fresh and frozen fishery products. The output of these establishments amounted to 348,756,950 pounds, valued at $25,028,920. The salmon industry was by far the most important and produced 267,876,081 pounds of products, valued at $22,609,811. The herring industry was next in importance and produced 57,860,907 pounds of products, valued at $1,173,158. The halibut industry ranked third and produced 13,552,296 pounds of products, valued at $493,052. Of the remainder, clam and shrimp products were most important in value.

Fur Seals.—The Pribilof Islands fur-seal herd, which is under the jurisdiction of the Department of Commerce, Bureau of Fisheries, now numbers about 1,318,500 animals. It was possible to kill 54,550 surplus males this year without affecting the normal growth of the herd. The skins are sold at public auction for the account of the Government. At the sale held on May 15, 1933, at St. Louis, Mo., 20,621 black dyed skins and 5,000 logwood-brown dyed skins, a total of 25,621, were sold at a gross price of $394,303.80. One confiscated fur-seal skin, dyed logwood brown, sold for $23. In addition, 682 blue-fox skins were sold for $19,976.50. The fall sale of fur-seal skins in 1933 was held at St. Louis, Mo., on August 28 and consisted of 18,047 black dyed, 6,192 logwood-brown dyed, and 237 raw skins from the Pribilof Islands, which were sold at a gross price of $469,761.50. At the August sale, also, there were sold 560 blue-fox and 22 white-fox skins from the Pribilof Islands, which brought $16,825.50.

FISH PROPAGATION

Fish-cultural operations on an extensive scale are conducted by Federal and state agencies with the object of conserving and increasing the supply of fish in the water of the country. The output of the 91 stations and substations of the Federal bureau, located in 39 states and in Alaska, again exceeded 7 billions and that of the approximately 400 state hatcheries was upward of 4,195,000,000. Expenditures by the states for the propagation of fish approximated $2,416,000. The combined output of trout of different species from Federal and state hatcheries exceeded 283,000,000, while the production of bass and other of the warm-water fishes ordinarily classified as game species was in excess of 1,053,000,000.

SCIENTIFIC INVESTIGATIONS

Biological.—With the continuing drain on the natural supply, there has been realized the greater need for a wise program of husbandry of our aquatic resources. This involves careful biological studies to determine the condition and trend of each important fishery as a basis for regulation and the development of water farming or aquiculture to increase the productivity of water areas. In large measure the states depend upon the National Bureau of Fisheries for the conduct of such investigations. Its major research activities include studies of the cod, haddock, mackerel, flounders, squeteague, and scup of the North Atlantic; shrimp in the South Atlantic and Gulf; the five species of salmon, and herring of the North Pacific; oysters on both coasts; the fresh-water mussels of the Mississippi Valley, and the important food fishes of the Great Lakes. Excellent progress is being made in the farming of oysters on an enlarged scale and in developing methods for the cultivation of fresh-water mussels in interior waters.

Technological. — Since agriculture and fisheries represent the two basic food industries, and since the fisheries represent one of our vital natural resources, it is absolutely essential to conduct technological investigations which will bring about the wisest husbandry and uses of our fishery harvest in order to render fullest economic value to the nation. To carry out this important function, the Bureau maintains a technological staff which consists of highly trained chemists, engineers, bacteriologists, and general technologists, to study and develop methods of manufacture, preservation, commercial handling and marketing of marine products. These technological studies cover the general subjects of nutrition, development of production methods, engineering, and bacteriological investigations, to improve these products for human and animal nutrition, and the chemical preservation of fishing nets and gear to cut down the costs of fishing. As may be readily seen, all of these investigations tend to reduce costs of production, and to give the consumer a better product at lower prices. Since we are dealing with a food industry in this instance, it is important to note that marine products are a good source of vitamins, contain minerals in quantity and variety, and are an economic source of highly digestible proteins. Our national dietary cannot help but benefit from an increased per capita consumption of fishery products in the United States. They are of value for both man and his domestic animals.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. of Nurserymen, P. O. Box 355, Louisiana, Mo.

American Country Life Assn., 105 E. 22nd Street, New York City.

American Farm Bureau Assn., 58 E. Washington St., Chicago, Ill.

American Forestry Assn., 1713 K St., N. W., Washington, D. C.

American National Livestock Assn., 515 Cooper Bldg., Denver, Col.

American Ornithologists' Union, 1939 Biltmore St., N. W., Washington, D. C.

American Phytopathological Society, Bureau of Plant Industry, Washington, D. C.

American Poultry Assn., Fort Wayne, Ind.

American Society of Agronomy, Room 25, Hall of Agriculture, Iowa State College, Ames, Ia.

American Society of Animal Production, University of Nebraska, Lincoln, Neb.

American Society of Equity, 311 Daily Star Bldg., Minneapolis, Minn.

American Society for Horticultural Science, Lock Box 299, Geneva, N. Y.

American Society of Mammalogists, Johns Hopkins Medical School, Baltimore, Md.

American Veterinary Medical Assn., 716 Book Bldg., Detroit, Mich.

Assn. of Land-Grant Colleges and Universities, Newark, Del.

Boyce-Thompson Institute for Plant Research Inc., 1086 N. Broadway, Yonkers, N. Y.

Farm Women's National Congress, Clarksville, Ia.

Institute of American Meat Packers, 509 S. Wabash Ave., Chicago, Ill.

International Farm Congress of America, Continental Bldg., Kansas City, Mo.

Izaak Walton League of America (the), 214 W. Huron Street, Chicago, Ill.

Jewish Agricultural Society, Inc., 301 E. 14th Street, New York City.

Middle Atlantic Fisheries Assn., Bridge Arch No. 11, New York City.

National Assn. of Audubon Societies, 1775 Broadway, New York City.

National Board of Farm Organizations, 1731 I Street N. W., Washington, D. C.

National Dairy Council, 111 N. Canal St., Chicago, Ill.

National Educational and Cooperative Farmers' Union of America, 1731 I Street N. W., Washington, D. C.

National Fertilizer Assn., 676 Investment Bldg., Washington, D. C.

National Grange of the Patrons of Husbandry, 630 Louisiana Ave., N. W., Washington, D. C.

National Highways Protective Society, 7 Dey St., New York City.

National Livestock and Meat Board, 407 S. Dearborn St., Chicago, Ill.

National Poultry Council, Davisville, R. I.

People's Lobby, Inc., 113 First St. N. E., Washington, D. C.

Society of American Florists and Ornamental Horticulturists, 480 Lexington Ave., New York City.

Society of American Foresters, 810 Hill Bldg., 839 17th Street N. W., Washington, D. C.

U. S. Livestock Sanitary Assn., 33 Livestock Exchange Bldg., Wichita, Kan.

Vegetable Growers' Assn. of America, c/o F. L. Allen Co., Philadelphia, Pa.

DIVISION XII

MINERAL INDUSTRIES

MINING AND ORE DRESSING

By Charles E. Locke

Professor, Massachusetts Institute of Technology

ECONOMICS

Present Factors and the Outlook.—In the record of the year 1933 the developments along the technical side of the mining industry were far outshadowed by the economic features and changes. With the exception of gold mining, conditions continued unsatisfactory although somewhat improved over 1932. Mineral production as a whole was only about half that of prosperous years. Time only will tell whether the low point was reached in the summer of 1932. It does seem certain that recovery will be slow. As the end of the year approached the future was obscured by the many confusing factors of (1) future prices; (2) government control through NRA, industrial codes, restriction of output, proration, anti-trust legislation, taxes and the National Securities Act with its definite tendency to retard promotion of new enterprises; (3) the lack of a general mineral policy; (4) the future attitude and demands of labor and (5) the departure of most of the nations from the gold standard and the question of its relation to commodity prices.

Production.—Taking iron and steel as an index, the shipments of iron ore from Lake Superior ports for the season up to Nov. 1st totaled 20,842,083 long tons. The corresponding figure in 1932 was 3,317,716 tons, in 1931 23,047,192 tons and in 1929 around 80,000,000 tons. Steel ingot production the first week of the year was 15.5 per cent of capacity. It increased to 19 per cent the last week of January, but in the second week of March receded to 13.5 per cent, the low point of the year. A continuous rise carried it to 57 per cent in July, whence it receded step by step to 25 per cent in the first week of November.

Prices of commonly-used metals showed a rising tendency. Silver had a gradual increase from 25.4 cents per troy ounce for January to over 42 cents in November. Electrolytic copper rose from 4.741 cents per pound for January to 8.446 cents for July and then sagged off to below 8 cents in November. Lead in New York was lifted gradually from 3 cents per pound in January to 4.5 cents in the fall. Zinc in St. Louis was 3.018 cents per pound for January, 3.666 cents for February, and then climbed to 4.916 cents in August, followed by a slight recession in the fall. Aluminum held constant at 55 cents per pound. Tin improved by successive steps from 22.692 cents per pound for January to over 50 cents in November. Quicksilver rose from $48.50 per flask of 76 pounds for January to $66.50 for October while platinum which was $26.48 per troy ounce for January, dropped to $24.00 for February and then went up gradually to $36.00 for October. Basic pig iron was $14.00 per long ton for January to April, $14.42 for May, $15.00 for June,

$15.50 for July, $16.00 for August, $17.00 for September and October.

Gold mining, which had been the bright spot of the mineral industry in 1932, was given further impetus by the departure of the major world nations, except France, from the gold standard with resulting increase in price for the metal. In the United States the gold embargo of April 20, 1933, practically marked the end of the gold standard, although it was not until Aug. 29, when the purchase price of newly mined gold was raised from the old standard of $20.67 per ounce to that of the world market varying from day to day, that gold miners were able to reap any benefit. In fact, during that interval, they were under the distinct handicap of being debarred from exporting their product to take advantage of the higher foreign price, and production not only halted its advance but even decreased. After August, Washington set the price day by day and early in November had carried it up to over $33.00 per ounce in the campaign for depreciating the gold value of the dollar on the theory that this would bring about a higher price level of all raw materials, goods and commodities. Not only in the United States but also in Canada, Australia, South Africa and, in fact, all over the world gold was sought. Operating mines strove to increase their output, prospecting for new mines was prosecuted vigorously, especially in new areas in Canada, old gold mines long idle were reopened and old placer deposits reworked. It is estimated that 3,000 individuals were engaged in placering in Arizona and 13,000 in California where the aggregate from this individual production in 1932 amounted to around half a million dollars worth of gold. The increased price of gold allowed the mining of lower grade ore at a profit. Prices of gold mine shares advanced and dividends rose. Among the many old gold camps that have been rejuvenated may be mentioned the Caribou district of British Columbia, various sites in Alaska, the California mother lode and even the famous Comstock silver district of Nevada where valuable bodies of gold ore have been discovered.

Other Metals and Minerals.—Outside of gold and in the fields of silver and base metals and mineral production in general it seemed in the early part of the year that everything was conspiring to hamper the industry. The base metals in particular languished under the adverse factors of extremely low prices and the great accumulation of unsold metal including the competition of scrap. The situation became even worse when the bank holiday was declared in March. However, under the stimulus of a new policy at Washington and the operation of NRA and codes, prices were raised which had the effect of creating a better sentiment, so that during the summer and through September an improvement occurred in the entire industry. Even some inroad was made on accumulated metal stocks. Among the base metals, tin reached the best position. It has the smallest overhanging surplus, and its November price was the highest of any of the preceding months of the year. Silver likewise looked promising. It was still rising in price in November and activity had been stimulated not only by a price rise of nearly seventy per cent in ten months but also by the agreement of the World Economic Conference signed in London July 22d to restrict sales and at the same time increase its use for monetary purposes.

Favorable factors, which should promote future improvement in mining, are the easing of laws and regulations and taxes and also the tendency toward a more liberal interpretation of anti-trust laws to allow the formation of marketing combines which should help to reduce cut-throat competition. It should be kept in mind as well that modern civilization is constantly developing new mineral and metal products and new uses therefor which can be met only by expansion of the mining industry. This is illustrated by the recent growth of the Great Bear Lake radium district in Canada and the erection of the reduction plant at Port Hope which has now reached the stage of commercial production of radium.

LABOR AND WORKING CONDITIONS

With the greater activity, especially in the summer and early fall, came increased employment. This was enhanced by the effects of NRA and the codes calling for shorter working hours, higher wages and more men. Even in the copper mining districts moderate advances in wage scales were effected. Labor troubles in fields other than coal were practically non-existent, largely because there were still many idle men seeking employment and the labor unions were not strong, but in the coal mines, especially around Pittsburgh and to some extent also in the anthracite district, serious strikes resulted from the demand of the union for recognition and for the adoption of its rules in accordance with its interpretation of the NRA. No major disasters occurred in mining during the year and still further reduction of the accident rate and improvement in health conditions were attained.

TECHNICAL PROGRESS

Research was pushed intensively to find new outlets for products, especially for the large accumulated stocks of base metals. A commercial plant for extracting bromine from sea water began operations. Still greater use was made of welding equipment for repairs and for prolonging the life of wearing parts, and likewise of non-corrosive and wear resisting alloys, including steel rails containing 0.25 per cent copper to withstand the action of acid mine water. Such developments have some effect on the demand for iron and steel. The output of potash from New Mexico increased and explorations in the Great Bear Lake radium district of Canada extended the area of potential production. Petroleum is being produced from a depth of 9,700 feet in California and drilling in the deepest well to date had reached 10,944 feet and was still proceeding. Some promising results have been obtained in California in the use of oil sands for storage by pumping oil back into the ground, using pressures up to 1,400 pounds per square inch. At the Climax molybdenum mine in Colorado a blast of 55 tons of dynamite broke 350,000 tons of ore underground. More mine timber is receiving treatment to prolong its life. Along with the trend toward greater use of electricity, electric cap lamps are expanding their field in coal mines. Cardox or liquid carbonic acid gas in cartridge form is proving to be a safe and satisfactory means of breaking down coal. More metal mines have adopted detachable drill bits. A mammoth power shovel for stripping operations at a coal mine weighs 1,750 tons. It has a dipper of fifteen cubic yards capacity or large enough completely to enclose a small automobile. Airplanes are providing speedy and economical transportation. Not only do they facilitate operations in general but in some cases they are almost indispensible. In the Peruvian Andes sixty tons of supplies and heavy parts for a gold mill were transported in twelve days a distance of sixty miles and to an elevation of 15,000 feet. Technical control of stone production and of sand and gravel mining is expanding and bringing about more efficient operations and more satisfactory products. With the competition of idle men desiring work and the effort of operators to economize in every possible way a still further advance has been made in the value of the output per man.

ORE DRESSING AND COAL PREPARATION

Milling.—Continued curtailment in mining was not conducive to progress in milling except in the case of the one active metal gold where a considerable number of small mills of from 50 to 150 tons capacity per 24 hours have been built or are under construction. There is a distinct tendency to depart from the old standard methods of milling gold ores by amalgamation and cyaniding and to employ flotation either as the sole process or in combination with the older methods. The introduction of flotation into California gold mills has resulted in a material increase in the percentage of gold recovered and a consequent reduction of the gold left in the tailings or residue after treatment. Flotation has also shown its ability to recover extremely fine metallic gold from river sands. Many gold saving devices, especially for treating placer deposits, have appeared but they involve no new principles and are not likely to find any wide application.

Crushing.—The new Hadsel mill for crushing is coming along, although not yet a complete success. In addition to the original mill at Georgetown, Calif., an installation has been made in the Amatok mill in the Philippines which is reported as successful, another in the Sultana mill in California which is doing fairly well, and still another in the Granada mill in Canada where a lot of difficulty was met. A form of hammer mill is being tried out on native copper ore in competition with steam stamps in the Copper Range mill at Lake Superior.

Coal Preparation has expanded and considerable construction of new plants is noted although less than in 1932. The consumer is benefiting from the competition in coal production and from the effort of producers to deliver a high quality cleaned product. Removal of fine material by dedusting devices prior to cleaning the coal is on the increase.

Other Progress.—Large Dorr classifiers 12 feet wide by 25 feet long deliver 12,000 tons of sand product per machine per 24 hours. Research on flotation has advanced our knowledge of theory and fundamental principles.

COAL AND COKE

By R. Dawson Hall

Engineering Editor, *Coal Age*

ECONOMIC FACTORS AND LABOR CONDITIONS

Mechanization Checked.—Changed economic considerations greatly modified conditions at the coal mines during 1933. Interest in mechanization was checked. Some operators reverted to hand labor, believing it better to pay more for loading by hand than to economize and expend the profit in relief. Lack of funds for mechanization and opposition to its operation on the part of employees made progress in that direction slower than for years. Marketing and preparation of coal are receiving renewed stress, but in regard to the latter, study of the problem was more active than realization, mainly because of lack of funds.

Bituminous Code. — When the NRA started its operations, the coal companies formed themselves into local groups for the preparation of codes, and at one time over 30 of these were under discussion in the bituminous coal regions, but the Administrator continually pressed for a single bituminous code and finally brought all parties together, though differing wage scales were adopted for the various districts. The code went into effect Oct. 2. It made the maximum work-week 40 hours, subjected all provisions as to sharing of work to agreements to be made between employees at each mine and their employers, set the minimum age for hazardous work at 17 years and put the date for wage review to Jan. 5, 1934 (since extended to Feb. 12).

The NRA stimulated the production of coal for a while, and coal stocks increased, but, toward the end of the year, the production of bituminous coal was somewhat less than it had been at the same period of 1932. Opinion is divided among operators as to the effect of the code, though a majority probably favor its operation; some are dubious as to the advantages of unionization. As for the miners, they are pleased but not entirely contented with the gains effected.

Union Strife.—A few attempts to institute company unions failed. Efforts were made by the Progressive Union to oust by violence the United Mine Workers of America at several mines, and by the union men to suppress "coöperative" mines where the miners operate the mines themselves on a royalty and share gains and, more usually, losses. In general, the United Mine Workers, which had dwindled immensely in recent years, once more established itself almost universally, though, at some mines in Illinois arrangements have been made with the Progressive Union. Disorder was rife at the former non-union coal mines of the steel corporations, and elections were finally held under the direction of the National Board to determine whether the arrangements should be made by the companies with the U. M. W. of A., or with the independents. In general the men decided two to one in favor of the former. In West Virginia, some miners out of work were settled on small farms.

Efforts to Enforce "Equalization." — No anthracite code was formulated in 1933. Much disorder and many strikes occurred to enforce what has become known as "equalization." The companies had closed many mines which had proved unprofitable, and the miners are urging that all mines should be worked whether unprofitable or not, so that all men will have equal opportunity for work. In the anthracite region, as in the bituminous, two labor factions contended for control, the U. M. W. of A. and the Anthracite Miners of Pennsylvania. The National Labor Board succeeded in establishing a truce, effective Nov. 13.

MECHANICAL DEVELOPMENTS

Roadways and Airways. — One of the trying problems in mining is to develop, speedily enough, the roadways and airways by which the coal is blocked out. Mines are often restricted in tonnage by mere inability of development to keep step with production, especially where the coal bed is thin or only a part of the coal bed is recovered. A machine with two revolving cutters that cut two circular cuts in the coal, a revolving saw that cuts tangents to the two circles at the top and bottom and wedges that force the coal down onto a conveyor, has consistently driven itself forward 56 ft. a shift at the New Orient Mine on the Chicago, Wilmington & Franklin Coal Co. This mine is in thick coal but only part of it is recovered, so speed in development is important. The machine would have to be modified for thin beds of coal if the coal mined by the machine were to be recovered. At the Clearfield Bituminous Coal Corporation's thin-coal operation, headings are driven with the aid of conveyors which carry the coal back to a looped track, at a point located a maximum of 300 ft. from the end of the headings. Here the cars turn on a curve in front of the end of the conveyor and are loaded continuously. Such a loop to be made between the heading and airway, but with increasing gas, special loops have since been constructed in "sweet-air" so that the air would not be, even in part, short-circuited, depriving the men at the face of a current of air that would sweep out the methane which the coal bed emits.

Track Cutter. — Remarkable results are being attained in cutting coal by heavy machines that have a turret and cut the coal at any level in a large circular arc from their position on the track. These machines are rapidly superseding the older machines, which had to be dismounted from the trucks on which they were conveyed from one working place to another. This is the fifth major development in cutting; to name them (1) the pneumatic puncher; (2) the bar cutter; (3) the breast machine; (4) the shortwall machine; and now (5 the track cutter.

Longwall Cutting. — Longwall in the United States is operated by cutting from one end to the other along a continuous working face, and then breaking the coal down by explosives and loading the coal either with a scraper or by hand. Rarely is the coal loaded by a mobile coal loader, because the loader requires for its operation so much untimbered space as to be unsafe. In Europe, however, the longwall face is sometimes attacked by cutting a somewhat deeper cut along the face and then opening a narrow place at one end of the longwall and breaking down the longwall face to the depth of the undercut in several short lifts. With this arrangement, the mobile loading machine can keep close up to the face and does not have to move except in a straight line. Hence, it can be protected all the time with a canopy of several strong timbers or steel sets and can deliver the coal to a conveyor just behind it. In this way, a well-known make of American machine has been adapted to longwall with safety. The efficiency, however, is somewhat reduced.

Reducing Mine Car Weight.—Too much dead weight in mine cars is a general complaint, and some progress is being made in its reduction. Alloy steels give additional strength without increase of weight, or the same strength with less weight. Making castings which incorporate in one piece floor plate, pedestals and draught housing, give a car which is stiff and strong yet light and capacious, The Philadelphia and Reading Coal and Iron Co. and the Lehigh Navigation Coal Co. have such cars. Now, the Indian Head Anthracite, Inc., has installed skips with the body of aluminum alloy, but with running gear and other parts which are subject to shocks or heavy stresses of steel; the weight is thus reduced almost 40 per cent.

Stripping shovels continue to operate with heavier buckets. A new stripping—the Middle Grove—with a cover of clay, blue shale and a limestone cap rock about 35 ft. thick in all, is using a shovel of 20-cu. yd. capacity to dig and shovel this cover unblasted. The dipper is counterweighted. Depth of overburden to thickness of coal is less than 8—a somewhat favorable ratio as ratios in the United States go. The Clemens Coal Co. has installed an 18-yd. shovel.

Horizontal drilling is replacing vertical drilling in coal strippings. The holes are drilled about 4 feet above the top of the coal. Less explosives are used; fewer holes drilled, and these in rock chosen for softness; overburden is lifted not thrown down; casing, pipe lines and pumps are eliminated; drill and explosives travel over the level pit bottom and not over the rough terrain; no drill emplacements need be excavated, and many other advantages accrue.

STUDIES AND TESTS

Explosion.—When a shot is fired and an explosion of firedamp or coal results, the flame of an explosive is, perhaps, not always the cause of the disaster. It may be the outcome of the heat of adiabatic compression consequent on the shot. The Bureau of Mines has been studying similar explosions with Schlieren photography, which records, on the film, the effect of changes in the index of refraction of the air under stress. The pressure wave strikes roof and floor, and the reflected floor and roof waves impinge on each other. The reflected waves also strike the face and produce an outgoing wave parallel to the first. In thin seams, this complication of pressure waves is so speedy as to be more dangerous than in thick seams, where more space is available.

Silicosis has been always ascribed to uncombined silica, but Dr. W. R. Jones of South Wales, has recently declared that sericite, sillimanite, tremolite and other fibrous rocks are either the cause, or one of the principal causes, which is not so strange, for asbestosis, practically identical with silicosis, is ascribed to asbestos, a fibrous rock. Sericite, as well as uncombined silica, is found in coal slates, and silicosis is rife among workers in the anthracite rocks in South Wales, as also in the Rand gold mines. Dr. J. S. Haldane, still adhering to his original theories, instances mines where there is no fibrous rock and many silicotics. Pyrene is being used for laying dust in metal mines in place of water.

Purifying Mine Water. — Efforts continue to be made to purify coal-mine water and H. M. Vanzandt, Sanitary Board of Pennsylvania, declares he has been able to obtain surprising results in its neutralization by temporarily impounding the water in an inert atmosphere. All mine atmospheres where tightly enclosed become inert. What happens is not quite clear. There is some sedimentation of acid material. Presumably, however, the sedimentary matter would ultimately build up to effluent levels. The ferrous sulphate in the mine water also is kept from oxidation; perhaps ferric sulphate is deoxidized to ferrous sulphate. Here again, it is to be feared that the aims of the engineers would be frustrated, for the ferrous sulphate is likely to oxidize to a strong acid on reaching the surface. Reaction with bases in the floor and in the roof may also neutralize the water as long as the bases last. This last is the most abiding protection against mine water already made acid. The CWA is preparing to dam up the mouths of old mines for the protection of the streams.

FUEL EXPERIMENTATION

A Versatile Coal Range. — During the past year, a house was constructed to demonstrate the value of a coal range that heats the house in the winter, cools it in summer, humidifies or dehumidifies and cleans the air, provides hot water, supplies ice water in bedroom and kitchen, operates a domestic refrigerator and dries clothes in the laundry. Another equipment which has the approval of a recognized experimental station has a 3-ton storage bin, a pulverizer, an elutriator to eliminate the coarse particles of coal, and a Dutch oven in which the coal is burned.

Service.—All manner of service is being furnished by coal dealers here and there throughout the country. Some are selling equipment for burning fine coal automatically with thermostatic control; many are furnishing inspection and advice; some are cleaning furnaces and radiators with vacuum cleaners; some are filling coal hoppers from the consumer's bin and removing the ashes for a consideration; and some are even furnishing heat from the consumer's equipment, also for a given consideration. The argument for the use of oil and gas is not economy but convenience; these services afford the latter. The ne equipments afford both lower cos and greater convenience. Thus fa the movement has been only spa modic and in the nature of exper ment. In Trenton, N. J., the retai ers are coöperating with each othe in their equipment sales.

Improving Coal.—Meantime an e fort is being made to improve coal b removing dust, cleaning the coal, coa ing it with sprayed solutions whic prevent the coal from distributin dust over the cellar, or which aid to burn more smokelessly or with de creased clinkering. Calcium chlorid has been used for some time for pre venting dust rising from coal; no oil emulsions and glycerine are bein applied. At a recently erected plan in Oklahoma, 5x5x4-in. blocks ar made of dried semi-anthracite slac with the aid of heat, a petroleu product derived from an asphalt-bas oil and tamping. These blocks ar strong, waterproof, clean and dustless burn evenly with little ash and smok and stack well. At the University o Illinois, impact tests have been mad on fine coal in molds to see if impac would make a briquet without binder Thus far, pressure alone has not bee able to accomplish this with any coal except the lignites of Central Europe The tests seem reassuring.

HAULING AND OUTPUT

Coal is now being extensively moto trucked, largely by truck-drivers who in more prosperous times, would be otherwise employed. Much trucking is being done at costs which provide neither for adequate wages nor fo depreciation. About 1.4 per cent of the bituminous coal, or 4,250,269 tons was hauled, in 1932, ten miles or more by truck. A large quantity has, of course, been hauled in wagons and trucks for years within the 10-mile limit. Output of bituminous coal increased in 1933 about 18,230,000 tons, or about 6½ per cent. Output of Pennsylvania anthracite decreased about 456,000 tons, or about 0.9 per cent.

PETROLEUM

BY ERNEST R. LILLEY

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CONSUMPTION AND EXPORTS

Increased Demand.—During the first half of 1933 the demand for oil products was slightly less than in the corresponding period of 1932. The increase in general business activity in the second half of the year not only served to cancel this decrease but was also sufficient to bring the consumption for the year to a total for all products of approximately 20,000,000 barrels above that of the previous year.

Export Factors.—Exports of crude petroleum were greater than in 1932. Despite the advantages gained through depreciation of the dollar, export sales of refined products declined approximately 15 per cent. In part this decline may be attributed to mechanical difficulties in arranging foreign sales during a period of violent fluctuations in value of the dollar. In part it must be attributed to the withdrawal of a number of American companies from the foreign marketing field because of increasing competition from foreign-controlled oil producing areas and the increased activities of governmental-owned or assisted marketing monopolies. The American companies remaining active in foreign markets have sought to gain control over supplies of crude nearer to their markets than those in the United States. Thus, during the year the Socony Vacuum Corporation, the leading distributor of oil products in the Far East, joined with the standard Oil Company of New Jersey, the owner of substantial oil reserves and refining capacity in the East Indies, to form a complete, jointly owned, well-to-consumer organization to take over its business in the Far East.

Gains in Oil Products.—The consumption of gasoline fuel oil, and lubricants declined during the first six months of 1933 in comparison with that of the same period in the previous year. In the last six months, however, consumption exceeded the 1932 figures. The summer brought more than the usual seasonal increase in gasoline and auto lubricant sales because of the popularity of the automobile with those who journeyed to the World's Fair at Chicago. The increase in demand for fuel oils, industrial lubricants, and gasoline for general use, while less marked, was still appreciable. The increase in the consumption of kerosene that began with the termination of the boom period continued.

PRODUCTION AND IMPORTS

Tariff Factors.—The tariff against foreign oils that went into effect in 1932 continued in force throughout the whole of 1933. Imports fell to approximately two thirds of the previous year's total. The tariff was especially effective in restricting the importation of gasoline.

Domestic production of crude oil showed a substantial increase over 1932 reaching a total of approximately 892,000,000 barrels against 785,159,000 in 1932. During the first three months of the year production is believed to have averaged approximately the same as in 1932, that is about 2,100,000 barrels daily. By the end of March it became evident that the yield of oil produced contrary to proration regulations, commonly known as "hot oil," had reached such proportions in East Texas that it was nullifying the value of the regulations and that the actual production of the country was far in excess of the totals reported by producers.

Regulation.—In April production declined materially, the east Texas field being shut down for two weeks while tests of the capacities of its wells were made. The efforts to regulate production subsequent to the completion of these tests failed and the yield of this field alone rose to more than a million barrels a day before the end of the month. Production continued at levels close to this throughout the whole of May despite drastic reductions in the market price of crude oil. By June fear of intervention by the United States Government in this and other sections suffering from unrestrained production, together with indications that the demand for oil products and for crude oil was rising, gave the state regulatory bodies a chance to gain a measure of control over the situation. However, the production of the country as a whole averaged more than 2,700,000 barrels daily throughout the summer. On Sept. 8 the Secretary of the Interior began to regulate production under the provisions of an oil code formulated under the National Recovery Act. Daily production was reduced by 200,000 barrels immediately. Further reductions in allowable production brought the daily yield to a total of approximately 2,200,000 barrels by the close of the year.

Gulf Coast Drilling.—The number of wells completed during the year was substantially below that of the previous year, when the drilling activity in East Texas was at its height. Gusher completion brought considerable activity in Michigan but the center of major importance was undoubtedly the Gulf Coast. A large part of the drilling in this area was concentrated in the Conroe pool, the only major pool to be developed in the country during the year. In addition the Gulf area was the center of a large amount of exploratory drilling that resulted in the discovery of oil and gas in salt dome structures whose presence had been indicated previously by geophysical work.

STOCKS AND PRICES

Stocks of refined oils were approximately the same at the close of the year as on Jan. 1. Crude oil stocks were somewhat larger at the end of the year, a substantial amount of the low priced crude oil available during the spring and summer months havi been run into storage by the strong companies in anticipation of produ tion restrictions by the National Go ernment.

Crude and refined oil prices both d clined steadily from January to M finally reaching levels at whi profitable operations were utterly i possible. Improved demand, steadi declining pressures in the leadi flush pools, the failure of new di coveries to develop into major poo and the imminence of Federal contr brought substantial increases in pric in all fields and markets in the ear summer. Prices were further a vanced in September when the nation code for the petroleum industry b came effective. On the whole pric were well maintained during the la three months, the average at the clo of the year being somewhat high than at the beginning. It should noted that the trend of prices wa abnormal, the late spring and ear summer being usually the time greatest demand and highest price and the last quarter a period of d clining consumption and reduced r turns. This was unfortunate as meant that during the period of pea demand the price of average crude o was less than 50 cents a barrel an gasoline sold for approximately 2 cent a gallon in the Oklahoma market.

TECHNICAL DEVELOPMENTS

A period during which the chie interest lies in restriction of all e penditures is not one that is likely t be marked by important scientific dis coveries and technical improvements A substantial amount of refinery con struction was carried on during th year but most of this work was o the replacement type. Refiners con tinued to devote much thought an money to improvements in processe or the production of high octane gaso line. More than the usual amount o attention was given to experimenta work tending to improve the qualit of lubricants. Considerable though was given to increasing the efficienc of pipe line pumps and to the redu tion of the cost of producing oil from wells that had ceased flowing. The acid treatment of limestone horizons to increase their yield became a general practice during the year.

GENERAL CONDITIONS

Probably no period of equal length presents such contrasts as the span of the twelve months of 1933. The emergency systems of compulsory restriction that had been set up by state authorities in the leading producing areas in 1932 and that had served to keep production in check during the latter part of that year proved unable to stand the additional strain imposed upon them by the collapse of the country's banking system. Many producers who firmly believed in the principle of restricting production to consumption were forced by financial necessity to follow the practices of those who were deliberately opposing and circumventing the restrictions imposed by regulatory bodies. In the majority of the producing sections the state authorities were able to maintain their control to a considerable degree but the Railroad Commission of Texas, the body regulating production in East Texas, was rendered utterly impotent in that area by a series of adverse court decisions and restraining injunctions. Throughout the spring the production of this pool was limited only by the availability of facilities to remove the oil. When the posted price for East Texas oil was reduced to 10 cents a barrel on April 24 and that of Oklahoma 36° A. P. I. crude oil to 25 cents a few days later the outlook for the oil industry could not have been blacker. Such prices could not last, particularly in a country whose government was definitely committed to the raising of price levels and to the direct regulation of industries if necessary. By the end of June the distress selling of crude oil and of its products had ended. Production was still far in excess of actual consumption but purchasers who a few months before were selling their storage oil at heavy losses were now actively bidding against each other to obtain crude to refill their storage tanks before the National Government's restrictive measures could be made effective.

On August 19 the code of fair competition for the oil industry was signed by President Roosevelt. On Sept. 8 the regulation of crude production actually became effective. On Sept. 29 the price of OklahomaKansas 36° A. P. I. crude oil reached $1.00 a barrel. Prices of crude oil in other sections and for refined products had risen to comparable levels that were generally considered sufficient to enable most operators to make a small profit. Important regulatory orders followed one another in rapid succession. Among them was one restricting refinery operations with the view of preventing the accumulation of excessive stocks of gasoline during the winter months. Strenuous efforts were made in the latter part of the year by a large and influential group to force the Government to extend its activities to include price fixing. This was resisted by a second and equally active group and by the more conservative officials of the Government who felt that the Government should not go as far as this and that regulation of production and refining would do all what was needed.

Without detracting from the excellent work of those who formulated and administered the oil code it should be pointed out that a large part of the oil industry's difficulties in the first half of the year were directly or indirectly traceable to conditions over which it had no control. The rapidity and completeness of the reversal of the trend of prices and the comparative ease with which the regulation of production was effected by the National Administration were very tangible indications that the producing branch of the industry was basically in a comparatively sound condition. Pressures and potentials had been declining steadily for some time in east Texas and Oklahoma City, and no individual pools comparable with these areas had been opened up. While theoretically the potential production of the country was still substantially above the actual production there was much evidence to indicate that no sustained increase in demand could have been met without the development of new pools and the expenditure of large sums of money in drilling. The necessity for such activity has always in the past been considered as an indication of the approach of better prices and profitable operations.

IRON AND STEEL

BY EDWIN F. CONE

TECHNICAL PUBLICIST, NEW YORK

THE NRA CODE

The outstanding event in the American steel industry during 1933 was the effect of the New Deal and the establishment of this great industry under a Code of Fair Practice. The story of the bringing of practically all American industries under codes is familiar and need not be gone into detail in this review. The steel industry fully coöperated with the Administration and formulated its Code which had a 90-day trial. At the end of this period the contract between the industry and the Government, represented by NRA, was renewed enthusiastically. Suffice it to say that the provisions of the Code, regulating wages, hours of labor and prices, have proved thus far eminently satisfactory. One of the serious problems of the industry for some years has been the cutting of prices by several companies. The Code eliminates this, and its infraction is punishable by heavy fines and other penalties. The prospects of the Code remaining an established policy are excellent.

PIG IRON AND STEEL PRODUCTION

Judged on the basis of production, both of pig iron and steel, the history of the industry for 1933 presents an encouraging picture in that the records for 1932 were substantially exceeded. Evidently a recovery set in last year with the low points for the depression established in 1932. This is conclusively demonstrated by the table of production of pig iron and steel for a period of years in thousands of gross tons:

Year	Pig Iron	Steel
1933................	13,208*	23,000*
1932................	8,686	13,300
1931................	18,426	25,946
1930................	31,752	40,699
1929................	42,614	56,433
1921................	16,688	19,783
1913................	30,966	31,301
1898................	11,774	8,930

* Estimated. Other data are those of the American Iron & Steel Institute.

These data show that steel output for 1933, estimated at about 23,000,000 tons, was 74 per cent larger than in 1932. They also reveal a comeback in production to nearly that of 1931 when the total was 25,946,000 tons. Pig iron last year did not make so large an increase; the estimated output of *The Iron Age* of 13,208,000 tons was about 54 per cent larger than the 1932 output of only 8,686,000 tons. Larger use of scrap in steel making accounts for these wide spreads in recovery, or a greater increase in steel than in pig iron.

The depths to which iron and steel output fell in 1932 are emphasized by the fact that the pig iron production that year was the smallest since the 11,774,000 tons in 1898 and that the steel output was the lowest since the 8,930,000 tons of the same year, 1898.

IRON ORE SHIPMENTS

Another evidence of the 1933 recovery is the fact that Lake Superior iron ore shipments to the steel industry in 1933 were approximately 22,000,000 tons against 3,500,000 tons in 1932, the worst year on record. While the 1933 total shows an increase over the years 1921 and 1931, generally regarded as relatively subnormal, they are considerably below the long-time averages.

PRODUCTION AND CONSUMPTION OF FINISHED STEEL

Production of finished steel for 1933 is estimated by *The Iron Age* at about 17,000,000 tons, a gain of about 65 per cent over 1932. That journal's estimate of the consumption of finished and rolled steel for 1933 shows that the automobile industry was steel's best customer, being credited with 19 per cent of the year's shipments against 17 per cent in 1932. Containers, represented entirely by tin plate, took 13.5 per cent of the steel made in 1933 compared with 11.5 per cent in 1932 and a 10-year average of less than 5 per cent. The building industry dropped sharply from 16 per cent in 1932 to 11.5 per cent in 1933. Railroad consumption declined from 12 per cent to 9 per cent and road building consumed 4.5 per cent as against 4 per cent in 1932. Exports of steel accounted for only 3 per cent in both 1933 and 1932. Prospects for 1934 appear decidedly favorable. A large demand for steel is expected from the automobile, building and railroad interests and a gradual recovery in output, demand and prices is looked for.

EMPLOYMENT

Some interesting comments on the effect of the NRA on the steel industry are recorded as coming from Walter S. Tower, executive secretary of the American Iron and Steel Institute, who says that 416,000 men were employed by the steel industry on Nov. 1 against 338,000 in June and 210,000 in 1932. The number of men on the payrolls now (December, 1933) is almost as great as it was in the boom year of 1929. If steel operations should rise to 70 per cent of capacity in 1934, it will be necessary, he said, for the industry to add at least 125,000 men to the payrolls.

TECHNICAL PROGRESS

Research Activities.—In the technical phase of the steel industry, progress last year was substantial. Research laboratories were active throughout the year. While only a part of the results of these researches have been made public, much progress has been made which will result in announcements of new products and processes in due time.

Stainless Steels. — Probably the greatest advances have been made in the stainless steels. Many improvements have been effected in methods of manufacture, and the output has rapidly increased. New uses for this valuable material have been developed and its place in industry is reaching new high levels. A survey of the output of stainless steels was published in *The Iron Age*, Feb. 16, 1933, which gave the following as the record for the last four years previous to 1933:

Year	Ingots	Castings	Total
1929	43,650	3,930	47,580
1930	49,060	4,020	53,080
1931	27,410	2,870	30,280
1932	21,280	2,490	23,770

Thus the peak in production of the stainless steels was 53,080 tons in 1930 but the depression naturally lowered demand in 1931 and 1932. The decline, however, was not as large as in other kinds of steel and the prospects are strong that the 1930 total will soon be largely exceeded as business regains its normal status.

Beryllium-Copper Products. — A new product of marked interest appeared on the American market in 1933 — beryllium-copper rolled and cast products. Several articles on these products were published last year by *The Iron Age* and the *American Machinist,* and a paper on beryllium-copper castings was presented before the American Foundrymen's Association convention in Chicago in June. Beryllium-copper products have unusual properties, combining high strength and elasticity with Brinell hardness up to 400. Tools are being made of this alloy which will not spark and which possesses many other properties and uses. The literature referred to should be consulted.

Insulated Furnace.—A marked advance in open-hearth practice was the announcement of results from the use of the insulated furnace. A paper on this subject was presented at the May meeting of the American Iron and Steel Institute.

Meetings and Papers.—All of the American technical societies held successful conventions which were w attended and replete with a la number and variety of techni papers.

COPPER

By Scott Turner

Director, United States Bureau of Mines

PRODUCTION

For 1933, world mine production of copper is estimated at 848,000 short tons, a decrease of about 125,000 tons, or nearly 13 per cent below production in 1932. Only 215,000 tons, or 25 per cent of the total, were derived from the United States, 633,000 tons having been produced by the rest of the world. World production of copper from scrap is estimated at approximately 174,000 tons, of which about 125,000 tons, or 72 per cent, were recovered in the United States. The world production from mines and from scrap was thus about 1,022,000 tons, a third of which, or 340,500 tons, is attributed to the United States. The production of refined copper in 1933 is estimated at about 925,000 short tons, inclusive of newly-mined copper and the fraction of scrap-copper production that was refined. A considerable part of the scrap that returns to consumption is contained in alloys, and, being re-used in production of brass and bronze, never reaches the state of refined copper.

CONSUMPTION

World consumption of refined copper is estimated at 1,094,000 short tons, including 412,000 tons taken by the United States and 682,000 tons consumed abroad. Great Britain, France, Germany, Italy and Japan accounted for 65 per cent of the foreign consumption.

STOCKS

The reduction of world stocks of refined copper is estimated at about 169,000 short tons. Some think that stocks at the end of the year will probably amount to about 620,0 tons, most of which are held America,—possibly as much as 50 000 tons.

IMPORTS AND EXPORTS

Based upon reports covering t first nine months of 1933, it is es mated that domestic imports of co per will amount to 137,000 short to and domestic exports to 180,000 to the excess of exports being abo 43,000 tons. This represents a retu to the historical position of t United States as a net exporter copper. Its net annual exports i 1925-1929 inclusive averaged 131,4 tons, but for the past three years i ports exceeded exports, the excess 1932 being 20,000 tons. This chan in 1933 was chiefly attributable the practical cessation of imports refined ingots and bars from bo Canada and Chile which occurred the fall of 1932, together with decline in exports of semi-manuf tured copper.

PRICES

The domestic price of electroly copper has exhibited a wide sprea from a low weekly average of 4.7 cents a pound to a high of 8.775 ce a pound. It averaged 4.875 ce for the first 15 weeks of the ye 7.438 cents for the second 15-we period and 8.421 cents for the thi For the week ended Nov. 11, i weighted average was 7.825 cen The price of copper for export h averaged 0.2 cents less than the Lo don price.

During the first 15-week period, t domestic price averaged 0.124 cen less than the London price, adjust for exchange, in spite of the domestic tariff of 4 cents. In the second period it exceeded the London price by 0.081 cents. In the third period, the average excess of the domestic price above that of London was 0.699 cents. For the week ended Nov. 11, however, the domestic price averaged 7.825 cents, a little less than that of London which was 7.873 cents.

THE ECONOMIC STATUS OF COPPER

Position of Securities.—The copper industry had never in the past experienced such profound disturbance as that which culminated in the seemingly hopeless chaos of the last quarter of 1932 and the first quarter of 1933. From the beginning of the depression in the fall of 1929, curtailment of production, though pronounced, had always proved inadequate with respect to the more rapid decline of consumption. The resulting accumulation of stocks and severe competition of sellers, seeking to avoid the perilous necessity of holding them, steadily depressed the price until it lost all relation to the cost of production and was determined chiefly by distress sales. Declining price rendered more difficult, in turn, the carrying of stocks by means of bank loans for which they had been pledged as security, and caused buyers to minimize their purchases of copper pending some signs of abatement in the price decline.

Technological Factors.—A remarkable combination of circumstances had conspired to render the copper industry especially vulnerable to the onslaught of the depression. The present century had witnessed notable advances in the technology of production, including the development of non-selective mass-mining, milling by flotation, smelting in large reverberatories, and electrolytic refining. Through reduction of costs and increase in the recovery of copper from ores, these methods decreased the minimum grade of ores required for profitable mining, and thus greatly increased the tonnage of ore reserves contained in known deposits.

New Ore Discoveries.—World resources of low-grade copper ore were, therefore, generally deemed adequate for all probable requirements through several decades to come, when a succession of new discoveries of copper deposits in Canada and Northern Rhodesia disclosed immense tonnages of ore much richer than the average grade of the previously-known world reserves. Application to these newly-discovered deposits of the advanced technology developed by existing operations was easily and promptly accomplished, but, unfortunately, the new mines were just coming into production when the depression abruptly stopped the rapid increase of consumption and soon began to curtail the rate of demand for copper that had already been attained.

Market Conditions.—For a time the imminent danger of destructive competition, resulting from over-production, was averted by means of world agreement upon production quotas arranged through Copper Exporters, Inc., but continuance of such an agreement was made difficult by agitation for our domestic tariff and became impossible after its enactment. This was due to the fact that the United States was normally the most important market for copper, its annual consumption having averaged 44 per cent of world production from 1925 to 1929, inclusive. Exclusion of foreign copper from so important a market, though it was in reality little more than a gesture, since the United States normally produced even more copper than it consumed and must, therefore, sell its excess production abroad, completed the disruption of Copper Exporters, Inc., and left each foreign producer free to expand its output without restraint. As a result, the drastic curtailment of production effected by the chief producing interests of the United States was not duplicated abroad and the relatively higher rate of foreign production prevented, in turn, disposal abroad of excess American stocks. By the end of 1932, stocks of refined copper amounted to nearly 800,000 tons, consumption for the year had amounted to little more, and its current rate was considerably less. The price had fallen below five cents a pound.

Effect of Inflation.—At the end of March, 1933, however, anticipation of endeavors by the Government of the United States to inflate the prices of commodities started buying of copper that resulted in the sustained advance of price shown above. This reflects, of course, increased consumption and reduction of stocks.

Production Control.—At present, consumption and production are approximately balanced, both in the United States and abroad. It appears likely, moreover, that domestic production will be adequately controlled through production quotas sanctioned by the National Recovery Administration, as negotiations for the establishment of a code for the domestic copper industry are now approaching some sort of conclusion. Unfortunately, however, the outlook with respect to foreign production is not equally encouraging. Individually, the producers of Canada, Africa and Chile are tending to expand production, with slight regard for the status of the industry as a whole.

Canadian production will show an increase of about 30,000 tons in 1933, and its rate is expected to expand further during the coming year. At present prices of metals, several Canadian mines produce copper somewhat as a by-product. Noranda's gold production of 1932 would now be valued at $11,250,000, and its copper production at less than $5,000,000. Its mill-capacity is accordingly being increased 50 per cent. Similar figures for Hudson Bay would be, gold $2,700,000, copper $3,200,000. International Nickel recently doubled its production, due to improved demand for nickel.

Africa.—Katanga is said to have nearly doubled production. Rhokana is building a refinery at N'Kana. Roan Antelope has announced an increase of production, while claiming costs equivalent to 3.31 cents a pound. Mufulira has resumed operations and is expected to come into production in a few months.

Chile.—Chile Copper, Braden, and Cerro de Pasco are no longer integrated in interest with United States production, and are reported to be increasing their output. For foreign copper, in short, an early increase in production rate of 200,000 tons a year has been estimated.

The Outlook.—In such a situation there appears slight promise of reduction of the existing large American stocks by disposal abroad, unless there develops a pronounced increase of world consumption. Otherwise, competition for the foreign market may be expected to prevent any substantial increase of price abroad, which must inevitably determine approximately the domestic price as long as there exists a domestic surplus pressing for export. Because of these circumstances, a suggestion was made recently for a world copper conference as a phase of the World Economic Conference, but it is reported that Great Britain, Canada, Chile, Peru, Japan and Belgium declined to participate.

GOLD AND SILVER

By Charles W. Henderson

Supervising Mineral Geographer, U. S. Bureau of Mines

GOLD

United States Suspends Gold Standard.—Following closely on the bank holiday beginning March 6, 1933,the United States departed from the gold standard for the first time in its history. Specifically, this departure is covered in President Roosevelt's Executive Orders of April 5, 1933, forbidding the hoarding of gold coin, gold bullion, and gold certificates, and of April 20, 1933, relating to foreign exchange and earmarking and export of gold coin or bullion or currency. The latter forbade the export of mine bullion. According to the Report of the Director of the United States Mint for the year ended June 30, 1933, the United States was off gold on and after April 19. Great Britain went off the gold standard in September, 1931 and was followed within a year by 41 other countries. Germany, Italy, France, Belgium, Switzerland, and Holland have remained on the gold standard to date (Jan. 17, 1934). Because of hoarding of gold on the Continent, the price of gold per ounce in London in April, 1933 was about 125 shillings of Great Britain's depreciated money as against 85 gold shillings. As long as the United States remained on the gold standard, no matter how many extra shillings over 85 per fine ounce were paid in the foreign market, gold would bring in United States money only $20.671835 per fine ounce, less commission, insurance, and transportation. After the United States was off the gold standard, more United States money could be obtained by shipping gold abroad, had it not been for the embargo on shipping. Gold producers protested, therefore, and the Empire Star Mines, Inc. of California made a test case by attempting to ship *via* the New York Custom House. This led to an announcement by the newspapers on July 27, 1933, of a decision by the Attorney General, that gold in ore, concentrates, unretorted gold amalgam, and unrefined cyanide precipitates could be shipped abroad, whereupon within the next several weeks some gold in unrefined form from the Empire North Star Mine of California and the Homestake Mine of South Dakota was exported. The Attorney General's decision allowed 75 per cent of the United States gold-mine production to be shipped to foreign markets and forced 25 per cent to remain here at the old price of $20.67 per fine ounce; the President on Aug. 29 issued an order, coupled with an anti-hoarding clause, that the United States Government would act as agent through the United States Mint to obtain the world price for newly mined gold. This arrange-

GOLD PRICES, OCT. 25, 1933 TO JAN. 10, 1934

(*The Wall Street Journal*)

	R.F.C. gold price	London gold price (in "s" and "d")		[2] Dollar rate in London	[3] Pound rate in N. Y.
Jan. 10..	$34.06	127	1	$32.36	$32.44
9..	34.06	126	8½	32.26	32.18
8..	34.06	126	8	32.24	32.24
6..	34.06	126	11	32.41	32.49
5..	34.06	127	6	32.83	32.54
4..	34.06	127	6	32.51	32.88
3..	34.06	127	6	32.91	32.61
2..	34.06	127	..	32.88	32.70
Dec. 30..	[1]	126	6	32.29	32.58
29..	34.06	126	2	32.11	32.01
28..	34.06	126	3	32.13	32.04
27..	34.06	126	5	32.52	32.28
26..	34.06	[1] ...	..	[1]	[1] ....
23..	[1]	126	4	32.23	32.28
22..	34.06	126	3	32.18	32.23
21..	34.06	126	2	32.16	31.92
20..	34.06	126	9	32.50	32.29
19..	34.06	126	9	32.64	32.57
18..	34.06	126	9	32.54	32.64
16..	34.01	126	4	32.34	32.34
15..	34.01	126	7	32.58	32.34
14..	34.01	126	1	31.88	32.26
13..	34.01	126	1	31.87	31.77
12..	34.01	126	4½	32.19	31.97
11..	34.01	127	..	32.73	32.32
9..	34.01	126	6	32.61	32.73
8..	34.01	126	9	32.43	32.67
7..	34.01	126	..	32.13	32.31
6..	34.01	126	11	32.81	32.45
5..	34.01	125	6	32.07	32.74
4..	34.01	124	8	32.23	32.03
2..	34.01	124	11½	32.40	32.41
1..	34.01	125	2	32.79	32.55
Nov. 30..	[1]	125	1½	[1]	[1] ....
29..	33.93	125	6	32.63	32.44
28..	33.85	125	6	31.85	32.60
27..	33.76	125	3½	32.75	31.98
25..	33.76	126	6	32.92	32.90
24..	33.76	126	1	33.35	32.67
23..	33.76	125	8	33.84	33.17
22..	33.76	126	6	34.41	34.07
21..	33.76	127	..	34.07	34.44
20..	33.66	127	7	33.78	33.83
18..	33.56	128	2	33.80	33.62
17..	33.56	128	2	34.32	33.45
16..	33.56	128	6	35.05	33.85
15..	33.56	129	½	34.45	34.90
14..	33.56	128	7	33.53	33.84
13..	33.45	129	1½	33.19	33.31
11..	33.32	130	1½	33.05	33.14
10..	33.20	129	8	33.47	33.09
9..	33.15	130	11	32.70	33.51
8..	33.05	131	10	32.46	32.81
7..	32.84	129	11½	[1]	[1] ....
6..	32.84	131	10	32.16	32.24
4..	32.67	132	4½	32.13	32.18
3..	32.57	133	2	32.22	32.24
2..	32.36	133	3	32.08	32.24
1..	32.26	131	9	31.58	31.62
Oct. 31..	32.12	130	7	31.07	31.16
30..	31.96	131	2½	31.52	31.18
28..	31.82	129	8	30.38	30.63
27..	31.76	131	2	31.02	30.79
26..	31.54	130	9½	31.03	31.01
25..	31.36	130	1	30.99	30.79

[1] Holiday. [2] London in dollars based on dollar rate at the fixing. [3] London in dollars based on pound at close in New York.

ment continued until Oct. 25, when the Reconstruction Finance Corporation began buying United States newly mined gold at prices above the world price; the purchase of foreign gold began at a later date. This price reached $34.06 on Dec. 18 and so remained for the rest of the year.

GOLD VALUATION OF THE DOLLAR

(in cents)

(*The Wall Street Journal*)

	R.F.C.	London	Paris	Amsterdam	Zurich
Jan. 10	60.69	63.88	64.1	64.0	63.9
9	60.69	64.07	64.2	64.2	64.0
8	60.69	64.11	64.2	64.1	63.9
6	60.69	63.78	63.8	63.7	63.7
5	60.69	62.96	63.7	63.5	63.2
4	60.69	63.58	63.4	63.4	63.4
3	60.69	62.81	62.9	63.0	62.9
2	60.69	62.86	63.3	63.2	62.8
Dec. 30	[1]	64.01	63.1	63.2	62.9
29	60.69	64.37	64.3	64.4	64.2
28	60.69	64.33	64.3	64.3	64.2
27	60.69	63.74	63.8	63.9	63.6
26	60.69	[1]	63.3	63.4	63.2
23	[1]	64.13	64.0	63.9	63.8
22	60.69	64.23	64.0	63.9	64.0
21	60.69	64.27	64.4	64.4	64.2
20	60.69	63.60	64.6	64.6	64.4
19	60.69	63.33	63.5	63.5	63.3
18	60.69	63.52	63.2	63.1	63.2
16	60.78	63.91	63.8	63.7	63.5
15	60.78	63.44	63.7	63.5	63.2
14	60.78	64.84	64.2	64.1	63.9
13	60.78	64.86	65.2	65.2	64.8
12	60.78	64.21	64.5	64.5	64.3
11	60.78	63.15	63.5	63.3	63.2
8	60.78	63.74	63.6	63.6	63.4
7	60.78	64.33	64.0	63.7	63.6
6	60.78	63.00	63.7	63.4	63.4
5	60.78	64.45	63.4	63.4	62.9
4	60.78	64.13	65.1	65.0	65.8
2	60.78	63.80	64.0	63.8	63.6
1	60.78	63.04	63.7	63.6	63.4
Nov. 29	60.92	63.35	63.0	63.0	62.7
28	61.06	64.90	63.4	63.1	62.9
27	61.23	63.11	64.9	64.8	64.5
25	61.23	62.79	63.5	63.3	63.2
24	61.23	61.98	63.0	62.6	62.5
23	61.23	61.08	61.4	61.2	61.1
22	61.23	60.07	60.6	60.3	60.1
21	61.23	60.67	60.7	60.3	60.2
20	61.41	61.19	61.0	60.9	60.8
18	61.59	61.15	61.7	61.2	61.1
17	61.59	60.23	61.2	60.9	60.8
16	61.59	58.97	58.5	58.1	58.2
15	61.59	60.00	59.8	59.5	59.5
14	61.59	61.65	60.9	60.6	60.6
13	61.79	62.28	62.3	62.1	62.0
11	62.03	62.54	62.4	62.1	62.1
10	62.25	62.29	61.97	61.65	61.61
9	62.35	63.21	63.02	62.71	62.62
8	62.54	63.68	63.5	63.2	63.1

[1] Holiday

SILVER

United States Government Grant Bonus on Silver.—The average pric of silver in New York in Januar 1933 was 25.40 cents; the price fo London spot silver in January wa 16.883 pence. The following table o silver prices by months for 1933 i taken from *Handy & Harman's Ar nual Review*:

1933	New York (Cents)	London Spot (Pence)
January	25.400	16.883
February	26.074	16.885
March	27.928	17.588
April	30.730	18.440
May	34.072	19.046
June	35.663	19.078
July	37.630	18.341
August	36.074	17.877
September	38.440	18.272
October	38.190	18.221
November	42.974	18.248
December	43.550	18.674
Average for the year 1933	34.727	18.144

On Dec. 21, 1933, President Roose velt issued a proclamation that give 64.5 cents per fine ounce to the pro ducer of newly mined silver, subse quent to the date of the proclamation from natural deposits in the Unite States or any place subject to the jurisdiction thereof. The Unite States Mint was prepared on Jan. 2 1934 to accept newly mined silve From then on there were two silve markets—the world and the U. S Government.

World Supplies.—Handy and Har man, silver brokers of New York City in their annual review of silver fo 1933 say: "Our 1933 estimates show that world supplies of silver amounte to 273,000,000 ounces, consisting o new production, demonetized meta and sales by the Indian governmen and China. This compares with 210,800,000 ounces during 1932. Of the 1933 total, approximately 110,000,00 ounces was absorbed in coinage, i the arts and industries, and by Germany and India. Since these figures leave a balance of some 163,000,00 ounces, and since the price of silve advanced during 1933 from the low level prevailing at the close of 1932, the laws of economics call for an offsetting demand. This demand, in our opinion, came chiefly from the public, which bought silver in the expectation that higher prices would occur as the result of either dollar depreciation or government action.'' Imports of silver in the first 11 months of 1933 into the United States totaled 130,806,000 ounces.

GOLD AND SILVER PRODUCTION

World production of gold from 1493 through 1932 has been approximately 1,108,000,000 ounces; for 1933 it was approximately 23,000,000 ounces. World production of silver from 1493 through 1932 has been approximately 15,460,000,000 ounces; in 1933 it was approximately 160,000,000 ounces.

United States.—Gold production in the United States from 1792 through 1932 has been about $4,650,000,000. The highest yearly production was $101,036,000 in 1915. It has remained between $54,000,000 and $44,000,000 annually during the period 1920-1933. It was approximately 2,600,000 fine ounces (including the Philippine Islands) in 1933. Silver production in the United States from 1801 through 1927 was 2,996,000,000 ounces. Production for 1928-30 averaged 56,000,000 ounces; production for 1931 was 30,932,000; for 1932, 22,899,865, and for 1933, 23,494,215 ounces.

LEGAL CONTENT OF COINS

Gold.—A troy ounce of gold (480 grains) is fixed by law at a value of $20.671834625323. A $20 gold piece weighs 516 grains, of which 90 per cent—464.4 grains—is pure gold.

Silver.—A silver dollar contains 412.5 grains, of which 90 per cent—371.25 grains—is pure silver. In coining silver, one troy ounce is valued at $1.292929. The average commercial ratio of silver to gold, with gold considered as of legal monetary value, was 53.74 to 1 in 1930, 71.25 to 1 in 1931, and 73.29 to 1 in 1932.

GOLD MINING OPERATIONS

Effect of Increased Prices.—The gradually increasing price for gold after August, 1933 resulted principally in increased production of marginal ore in California and Colorado, slightly increased the output of the already profitable Homestake mine, and added a dredge-boat each in Idaho and Montana. The extra price after Aug. 29, received in notes payable on Feb.

MONETARY STOCK OF GOLD IN THE UNITED STATES SINCE 1873[1]

(In thousands of dollars)

End of Year	Coin in Treasury	Bullion in Treasury	Coin in Federal Reserve Banks	Bullion in Federal Reserve Banks	Coin in national banks, comptroller's report	Other coin[2]	Total stock of gold
Fiscal year June 30, 1873........	55,519	15,670	....	....	3,818	30,000	105,007
Calendar year:							
1880...........	61,481	93,790	....	....	92,185	150,086	397,542
1890...........	226,220	67,646	....	....	80,362	274,056	648,284
1900...........	328,453	153,095	....	....	199,350	307,870	988,768
1910...........	982,586	120,726	....	....	227,978	378,745	1,710,035
1920...........	238,270	1,999,619	65,979	147,313	20,686	453,882	2,925,750
1930...........	735,087	2,783,637	449,916	256,469	14,088	354,291	4,593,488
1931...........	976,900	2,580,803	286,082	207,688	12,973	395,653	4,460,099
1932...........	964,795	2,202,536	410,760	466,431	12,753	455,726	4,513,001
1933...........	3,083,100		810,200		118,600	311,000	4,322,900

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[1] Previous to 1914 (year Federal Reserve system established) figures are unrevised. Gold in the Treasury is principally held against outstanding currency and (since 1916) for the account of Federal Reserve banks.

[2] Includes coin in state and private banks as well as coin in tills and the hands of the public.

1, 1934, has not only encouraged the established gold producer but has brought rather handsome extra returns. The increased value over the $47,958,973 (calculated at the legal coinage value of $20.671835 per fine ounce), represented by the 2,320,015 fine ounces produced by 13* western states and Alaska, amounted between August and Dec. 31 to approximately $9,000,000. On Jan. 1, 1934, the Reconstruction Finance Corporation announced that it had to that date set aside $100,000,000 for gold buying and had spent less than $20,000,000 absorbing domestic newly mined supplies.

Alaska. — Production of gold in 1933 in 13 western states and Alaska came mainly from well-established and well-developed mines in old districts. The Alaska output came chiefly from the Alaska-Juneau lode mine and from floating dredge-boats at Fairbanks and Nome. The Alaska-Juneau Gold Mining Co. reports profits, before depreciation, depletion, and Federal taxes and with gold figured for both years at $20.67 an ounce, as $1,270,000 in 1933 and $1,118,100 in 1932.

Western States. — The California output came chiefly from the lode mines of the Grass Valley—Nevada City district and from the floating dredge-boats of the Sacramento Valley. The Colorado output came chiefly from Cripple Creek, Alma, and the San Juan region. The decrease in Colorado's output is plainly due to the decline in production of one mine, the American, a spectacular producer in 1932 from a 600-foot claim near Alma. The South Dakota output came almost entirely from the long-lived (1876 to date), well-developed Homestake mine at Lead. The increased gold output in Arizona—from 66,790 ounces in 1932 to 75,813 in 1933—came from the gains at the Lake Superior and Arizona lease at Superior, Arizona Gold Mines in the Katherine district of Mohave County, and the copper ore of the United Verde Extension. Seventy per cent of the gold output of Arizona is accounted fo in the receipts at the three coppe smelters at Douglas, Clemencea and Superior. New production cam mainly from lessees' treatment, b amalgamation, of oxidized ore fro the upped levels of the old Vu ture mine, in the Vulture Moun tains, Maricopa County; from trea ment, by cyanidation, of the Vultur tailing dump; and from operation o the old Katherine cyanidation mi northwest of Kingman by the Arizon Gold Mines.

Idaho, not a large producer of gol since the early sixties, produced 61 208 ounces in 1933, chiefly from fou floating dredge-boats—two at Warren one at Pierce, and one in Owyhe County—and lode mines at Stibnite Orogrande, and Atlanta. Montana in creased its production from 40,60 ounces to 51,102 ounces, chiefly from the output of the Jardine, Boss Tweed Clipper, Liberty Montana, Stor dredge-boat, Anaconda Copper Co. Gold Coin, and Southern Cross. Sev eral Montana gold mines, productive in 1932, either were idle in 1933 o decreased their output. Nevada gold production declined chiefly because o the lowered output of some of the larger gold producers of 1932 and the exhaustion of ore bodies at the Elkoro mine at Jarbidge. The leading producer of gold in Nevada was the Nevada Consolidated Copper Co. at Ely. New Mexico's small gold increase came from increased lead-silver-gold-copper concentrates from the Pecos zinc-lead mine at Tererro, and from operations at Mogollon and Pinos Altos. Oregon's small increase was from placer operations, including both dredge-boats and small-scale placers. Utah's gold production—108,841 ounces—decreased because there was a falling off of the yearly total gold content in ores mined at the Niagara and United States mines at Bingham which more than offset an increase from the copper ore of the Utah Copper Co., and because gold production in the Tintic district decreased 20,000 ounces; some of these decreases were partly met by the output of the new cyanidation gold mill at Fairfield, working on old tailings. The output of gold from Washington, principally from the Republic district, fell from 5,082 ounces in 1932 to 4,800 in 1933. The gold yield from Wyoming, principally from the Atlantic City-South Pass district, increased from 257 to 2,203 ounces.

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* Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico. Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

GOLD PRODUCTION IN THE WESTERN STATES, ALASKA, AND PHILIPPINE ISLANDS, 1932-33[1]
(in terms of recovered metals)

	1933		1932	
	Fine ounces	Value[2]	Fine ounces	Value[2]
Arizona	75,813	$1,567,194	66,790	$1,380,665
California	592,400	12,245,995	569,167	11,765,726
Colorado	242,008	5,002,749	317,928	6,572,154
Idaho	61,208	1,265,282	46,885	969,207
Montana	51,102	1,056,372	40,602	839,318
Nevada	105,000	2,170,543	129,720	2,681,547
New Mexico	25,964	536,724	23,208	479,753
Oregon	20,200	417,571	19,861	410,568
South Dakota	510,058	10,543,835	480,338	9,929,459
Texas	....	....	9	179
Utah	108,841	2,249,943	135,256	2,795,997
Washington	4,800	99,225	5,082	105,057
Wyoming	2,203	45,540	257	5,305
Total	1,799,597	$37,200,973	1,835,103	$37,934,935
Alaska	520,418	10,758,000	493,860	10,209,000
Total	2,320,015	$47,958,973	2,328,963	$48,143,935
Philippine Islands	282,335	5,836,383	244,298	5,050,484
Grand total	2,602,350	$53,795,356	2,573,261	$53,194,419

[1] Eastern states production was nominal.
[2] Based on legal coinage value of $20.671835 per fine ounce.

SILVER-MINE PRODUCTION

Western States, Alaska and Philippines.—The thirteen western states in 1933 yielded in recovered metal 22,895,066 ounces of silver compared with 22,402,598 ounces in 1932. Utah, in a position to make an increase because of developed ore bodies but actually producing during the last three years largely to provide employment, yielded 5,658,000 ounces in 1933 compared with 6,962,097 ounces in 1932. The production from Arizona (2,409,300 ounces), Colorado (2,242,646 ounces), Idaho (7,202,000 ounces), Montana, (2,572,000 ounces), and New Mexico (1,186,132 ounces) increased; Nevada production (1,115,000 ounces) decreased. The average price for silver was 28.2 cents in 1932 and 34.5 cents in 1933, but this differential was not enough to encourage operations more than moderately, for nearly all the 1933 production was nonprofitable and the result of efforts to provide employment in lead, zinc, and copper districts. Alaska in 1933 yielded 228,723 ounces of silver and the Philippine Islands 184,426 ounces, and silver yields in other states were Michigan, 140,000 ounces; Missouri, 20,000 ounces; Tennessee and North Carolina combined, 26,000 ounces; the remainder, nominal; total, 23,494,215 ounces.

Sources. — Silver-bearing ores of the western states are nearly all mineralogically complex—lead and lead—(zinc-iron), lead-zinc-copper-iron, or copper. In 1923, when the entire United States (not including the Philippine Islands and Puerto Rico) produced 70,355,674 ounces of silver, the sources of silver, according to the United States Bureau of Mines classification, were: Dry and siliceous ores, 39 per cent; copper ores, 21 per cent; lead ores, 29 per cent; lead-zinc, zinc, and copper-lead-zinc ores, 11 per cent. Since siliceous and dry ores are those low in lead, copper, or zinc and are mined only for the silver or gold and silver content, the sum of the byproduct sources from complex ores was 61 per cent. In 1929, when the production was 60,860,011 ounces, the relative sources were siliceous and dry ores, 18; copper ores, 30; lead ores, 19, and lead-zinc, zinc, and copper-lead-zinc ores, 33 per cent. The sum of the complex sources was, therefore, 82 per cent. In 1932, when the production was only 22,739,669 ounces, the percentages of sources were: Dry and siliceous ores, 17 per cent; copper ores, 23 per cent; lead ores, 22 per cent, and lead-zinc, zinc, and copper-lead-zinc ores, 38 per cent. The sum of the complex sources was 83 per cent. As most of the ores classified as dry and siliceous also contain some lead, zinc, and copper or are mined from ore bodies contiguous to lead-zinc ore bodies, strictly speaking, silver mines are practically nonexistent. Mines most nearly in a straight silver classification include those at Creede, Col., and the Presidio mine, at Shafter, Tex., both idle since July 1, 1930, and those at Tonopah, Nev., the output of which has been declining rapidly. The 25 leading silver producers, mainly byproduct silver mines, yielded 79 per cent of the United States output in 1931 and 86 per cent in 1932.

Effect of President's Proclamation.—On December 21, 1933, President Roosevelt issued his silver proclamation, which means essentially that newly mined silver shall be bought by the United States Treasury at a price of 64.5 cents an ounce to the producer. The U. S. Mint was prepared on Jan. 2, 1934, to buy silver at this price from natural products which had been mined subsequent to Dec. 21. The President's proclamation is to "remain in force and effect until the 31st day of December, 1937, unless repealed or modified by Act of Congress or by subsequent proclamation." The 4-year provision holds forth the most hope for increase of silver production, for capital can thus plan for a completed operation within that time. In considering future production of silver, reservations should be made dependent on the future prices for copper, lead, and zinc and on the production provisions in NRA codes for these metals. As a result of the President's silver proclamation the mines at Creede, Col., and Shafter, Tex., are already preparing to reopen.

SILVER PRODUCTION IN THE WESTERN STATES AND ALASKA 1932-33

(in terms of recovered metals)

	1933		1932	
	Fine ounces	Value[1]	Fine ounces	Value[2]
Arizona	2,409,300	$831,209	2,082,823	$587,356
California	352,700	121,682	493,533	139,176
Colorado	2,242,646	773,713	1,860,408	524,635
Idaho	7,202,000	2,484,690	6,716,968	1,894,185
Montana	2,572,000	887,340	1,686,213	475,512
Nevada	1,115,000	384,675	1,304,365	367,831
New Mexico	1,186,132	409,216	1,142,351	322,143
Oregon	13,000	4,485	8,616	2,430
South Dakota	127,529	43,997	126,195	35,587
Texas	....	....	1,422	401
Utah	5,658,000	1,952,010	6,962,097	1,963,311
Washington	16,500	5,692	17,412	4,910
Wyoming	259	89	195	55
Total	22,895,066	$7,898,798	22,402,598	$6,317,532
Alaska	228,723	64,500	234,050	66,002
Grand total	23,123,789	$7,963,298	22,636,648	$6,383,534

[1] Average price of silver, $0.345.
[2] Average price of silver, $0.282.

ZINC

By Walter Renton Ingalls

Consulting Engineer, New York City

PRODUCTION AND CONSUMPTION

When the statistics for 1932 were fully rounded out they had an encouraging look. It became clear that actual consumption in the United States had been in excess of production, which had been severely curtailed, and the only possible inference was that manufacturers had been drawing on invisible supplies. It was clear also that smelters had been drawing on resources of ore, the production of which had been curtailed even more than in respect of the metal. Somewhat similar conditions existed in Europe although its picture was not so distinct. However, production of spelter continued under restraint through the International Cartel and stocks in first hands were substantially reduced month by month during 1932.

PRICES

During the first quarter of 1933 the conditions remained substantially unchanged. In April, however, there began to be signs in the United States of improvement in actual consumption and a more emphatic call upon smelters by manufacturers to replenish depleted stocks. By the end of May the buying had become exigent and in June a price of 5c. St. Louis was realized on large transactions, against a quotation of 3⅛c. at the beginning of the year and about 2.25c. as the nadir in 1932. Concurrently there was an advance in the London price, but not so sharply as in America and our market had to stop at 5c. lest importations from abroad should begin. The subsequent weakening in the London market reduced our domestic price to 4.65c. for the same reason.

During the first quarter of 1933 domestic deliveries ex-metallurgical works were but little more than 15,000 tons per month. In July they were upward of 45,000 tons. Actual consumption had increased, but in nothing like that ratio, the great outflow having been largely to replenish depleted stocks in the manufacturing system. With such satisfaction completed the deliveries receded somewhat after July.

SPELTER STOCKS

Beginning in July distillers and electrolyzers increased their production, but in that they were temperate, and the domestic stock of spelter in first hands which was 125,000 tons at the beginning of 1933 was only about 100,000 tons at the end of September. During the same period stocks outside of the United States were reduced from 165,000 tons to 142,000 tons, although the cartel had authorized an increase (from 45% to 50% of the base rate) in the production at the middle of the year. At the last quarterly meeting the cartel was extended to the end of 1933.

MINING AND METALLURGY CONDITIONS

Physically the conditions of mining and metallurgy experienced no far-reaching change in 1933. No new plants were brought into being. Production of electrolytic zinc was resumed in Northern Rhodesia. The project for a great electrolytic plant at Magdeburg was revived under the auspices of the German government. The Imperial Smelting Co. acquired two additional plants in Great Britain, thus giving it full control of the metallurgy of zinc in that country. We became convinced of the economic soundness of the process of continuous distilling as developed in America. Methods were improved for the production of spelter of 99.99% fineness. The demand for such spelter for die-casting increased.

LEAD

By Allison Butts

Associate Professor, Lehigh University

GENERAL CONDITIONS

Reduction in Stocks.—Accumulation of stocks in the hands of lead producers during 1932, due to tardy curtailment of production in the face of diminishing consumption, had a bad effect on the industry which extended into 1933. At the beginning of 1933, however, production had been reduced to the lowest rate since 1899. It is believed that stocks were reduced as the year went on, and in the second half of the year the industry was in a somewhat better position. Taking the year as a whole, it is probable that production of lead, both in the United States and in most of the other producing countries, continued the downward trend of the past several years; there was, however, an improvement in the middle of the year.

Lead Industry Code.—A code for the lead industry was formulated by the Lead Industries Association and submitted for approval early in the fall. This was adopted with slight changes and virtually the whole industry is now operating under the NRA.

PRICES

The price of lead, after falling to 3 cts. a pound (New York) toward the end of 1932, began rising in March, 1933, and continued to rise until a price of 4.5 cts. was reached in July. This figure held until October, when there was some falling off, the price at the end of the year being 4.15 cts. The average price for the year was 3.88 cts. a pound, a substantial gain over the average of 3.18 cts. in 1932. In 1931 the average was 4.2 cts.; in 1929 it was 6.8 cts. For the first time in many years the price of lead fell definitely below that of zinc, which was quoted 0.3 to 0.5 ct. above lead most of the year. This was a reflection of the fact that there was little accumulation of stocks of zinc at the beginning or during the year.

SECONDARY LEAD

The large increase in the relative importance of secondary lead was noted in the writer's review a year ago, and the reasons for it discussed. A detailed analysis of this subject has been written by S. Tzach. (*Eng. Mining J.*, Aug. 1933), who calls this the outstanding development in the American lead market of the last decade. From an amount equal to 23 per cent of the United States production of primary lead in 1920, the output of secondary lead has grown to 73 per cent of the primary production in 1932, and probably even higher in 1933. Most of the increase has been in the last five years. The greater part of the secondary output is still the product of plants treating exclusively scrap metal, but an increasingly large part is being turned out by producers who also make primary lead direct from ore. In some cases large consumers of lead have built or purchased secondary smelting plants to supply their own requirements. The relative importance of secondary lead now nearly equals that of secondary copper, which has made only a small gain since 1920. Of the total amount of secondary lead, half to three-quarters is of lead as such, the remainder being lead contained in lead alloys, chiefly antimonial lead.

LEAD SMELTING AND REFINING

Modification of Parkes Process.—The outstanding contribution to the metallurgy of lead during the past two years has been the development of the continuous method of operation of the Parkes process, making the four stages of softening, gold removal, desilverization, and final removal of zinc, all continuous instead of batch processes. The batch method of desilverization has been universal practice since the beginning of the Parkes process in 1850. This new modification, developed at the plant of the

Broken Hill Associated Smelters, Proprietary, Ltd., at Port Pirie, South Australia, apparently ranks in importance with the Harris process of softening with fused caustic soda, the Betterton process of removing zinc with chlorine gas, and the Kroll-Betterton process of removing bismuth with metallic calcium, which have been the principal developments in lead refining in recent years. Indeed, although continuous operation in the Parkes process is a modification rather than a new process, the remarkable results attained at Port Pirie indicate that it may prove to be of greater significance than either of the three processes mentioned above. It has achieved not only a considerable saving in time and labor, with the attendant reduction of costs, but also a large improvement in products.

Details of the New Method.—Continuous operation in softening was begun at Port Pirie several years ago, being applied as a modification of the usual method of oxidation in reverberatory furnaces. Much more efficient removal of arsenic and antimony resulted. It was then adopted for the final dezincing, again using reverberatory oxidation. Application to the heart of the process, the desilverization stage, was more difficult, and was not adopted until the building of the new plant in 1931-32. During 1933 it has been brought to its present state of successful operation, with an annual output of about 150,000 tons of lead and 8,000,000 oz. of silver. The capacity of the plant is much greater than these figures. Briefly, the new method differs from the old in employing a kettle of different design, narrow and deep, heated at the top only. Zinc is added at the top at intervals, the temperature at the top being 600° C. or more, sufficient to melt the ''crust'' or enriched silver alloy which forms lower down in the cooler part of the kettle and then rises. Enriched alloy is removed from the top, while desilverized lead is taken from the bottom by means of a cast-iron siphon. Thus there is a continuous formation and separation of conjugate solutions. Gold is removed in a separate zincing, prior to the removal of silver and carried on in a similar manner, but with the temperature at the top about 500° C., so that there is some solidification of crust, though not enough to interfere with continuity. This crust is removed by skimming. As compared with the old batch method, the silver content of the enriched alloy has risen from 2,000 to 6,000 oz. per ton, while the silver content of the market lead has fallen from 0.19 to 0.03 oz. and the gold content from 6.4 to 0.4 grains per ton. Development of the continuous process has been described by G. K. Williams (*Proc. Austral. Inst. Min. Met.*, 1932).

Treatment of Blast-furnace Slag.—At Trail, B. C., a new process is in use for recovering lead and zinc from the slag made in lead blast furnaces. It is described by G. E. Murray (*Can. Min. Met. Bull.*, Apr., 1933). It consists of a treatment in a ''fuming furnace,'' which volatilizes the zinc and lead. The fume is recovered in a bag-house.

New Plant. — The United States Smelting, Refining and Mining Co. completed its new refinery at Midvale, Utah, and began operating Sept. 1, 1933. It has a capacity of 6,000 tons a month, making it the largest west of Omaha. It uses the Parkes process, bullion being drossed and then conveyed molten from the adjoining smelter. It is poured from ladles into 235-ton kettles for decopperizing by means of sulphur. In the final dezincing, the chlorine process is employed.

PROPERTIES OF LEAD AND LEAD PRODUCTS

Corrosion.—Due to the wide use of lead as a corrosion-resistant material, continued study is being given to this property. P. F. Thompson (*Proc. Austral. Inst. Min. Met.*, 1932, 193) suggests that iron derived from molds or tools is a principal cause. The Pacific Coast Electrical Association is investigating galvanic corrosion of lead underground. In some cases this may be very destructive.

Lead in Water Pipes.—Tests made by G. Nachtigall in Germany showed that drinking water would absorb less lead from lead pipes than copper from copper pipes, and that in neither case was the amount absorbed detrimental to health. According to J. Zink (*Z. Anal. Chem.*, 1933, 246) the solubility of lead in water is reduced by the presence of bicarbonates and sulphates in the water, but considerably increased by the presence of free carbonic acid. C. E. Larard and F. A. W. Oliver (*Engineering*, 133, 673) have shown the great superiority of lead over the usual type of copper pipes in resisting fracture when water is frozen in them. Dead soft copper, however, would behave about as well as the lead.

Lead Shot.—Arsenic to the amount of 0.5 per cent is commonly added to lead shot. In addition to hardening the shot, the arsenic produces rounder shape. G. Tammann and L. Dreyer (*Z. Metallkunde*, 1933, 6 have found that the latter effect not due to effect on surface tensio but to the fact that lead oxide form ing on the surface of the shot fluxed by the arsenic trioxide whic also forms.

ELECTRODEPOSITION OF LEAD

A new bath which may be used fo lead plating or refining has been di covered by R. L. Bateman and F. Mathers (*Electrochem. Soc. preprin* Sept. 1933). It is a 4-5 per cent solu tion of lead dithionate with 1.5-2 pe cent free dithionic acid and additio agents.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. of Petroleum Geologists, Box 1852, Tulsa, Okla.

American Gas Assn., 420 Lexington Ave., New York City.

American Institute of Mining & Metallurgical Engineering, 29 W. 39th Street, New York City.

American Iron and Steel Insti tute, 350 Fifth Ave., New Yor City.

American Mining Congress, 84 Munsey Bldg., Washington, D. C

American Petroleum Institute, 25 Park Avenue, New York City.

American Zinc Institute, 60 E 42nd Street, New York City.

DIVISION XIII

MANUFACTURES AND TRANSPORTATION

CONDITIONS IN MANUFACTURING

By L. Seth Schnitman

Chief Statistician, F. W. Dodge Corporation

POLITICAL AND ECONOMIC IMPLICATIONS

The Need for Heroic Action.—By all odds, 1933, in economic annals, must be recorded as the one year most subject to political influences, both domestic and international, of any year thus far since the advent of the depression of 1929 if not indeed since the depression of the seventies of the last century. There is nothing new in this phenomenon. There comes a time in every major depression when economic and social currents reach so low an ebb that the stability of government itself is threatened. Indeed such was the case in 1933, and this, as in earlier economic cataclysms, which resulted from war reconstruction excesses, necessitated heroic political action for better or for worse. A major operation was necessary; it was no longer a question of whether the patient would live. Government needed first the courage to act and then the hope that the operation would be successful.

Government Intervention. — The period of political interregnum in our national government between the overwhelming repudiation of the Hoover Administration at the polls on Nov. 8, 1932, and the fourth of March, 1933, when President Roosevelt, as his first official act, proclaimed a National Banking Holiday, progressively accelerated the economic and social toboggan toward a chaos, which but for political intervention, would have proved almost inextricable. Such was the setting for the economic scene which gave ascendancy to the political influences and necessitated the use of a wide array of governmental props, the nomenclature of which practically exhausted the euphonious letters of the alphabet.

The Raid on Economic Orthodoxy.—When the Reconstruction Finance Corporation early in 1932 was, by popular acclaim, christened the R. F. C., bold indeed was that man who dared to envision such a schism in economic orthodoxy as to compel government to give paternity to such organisms as NRA, PWA, AAA, FERA, PRA, SRC, TVA, FACA, CCC, HOLC, FCA, CWA and more. Each of these alphabetized agencies of government was essentially a creature of the times. This is true even to the FACA—the Federal Alcohol Control Administration—which probably never could have come into being but for the deep economic despondency that so changed the temper of an entire people where, in search for new sources of revenue, they were willing to ratify the 21st Amendment to the Constitution, erasing the ignominious 18th Amendment and its long train of contraversial economic and social malconsequences. Perhaps this ratification was just another noble attempt to blot out forever the racketeering which always has followed political abridgment of personal liberties. But what of other 1933 creations of government which designedly are interferences with individual freedom that pale anything in American history? What of the codes of fair practices for industry and business, what of the restrictions on agricultural crops, of the limitations on mortgage foreclosures? What then are these and the many more new functions of our body politic but further abridgements of our personal liberties that must be reckoned with as probable fertilizers for a new crop of rackets? Is it possible that the democracy which gave rise to the rugged individualist has now been proved a dismal failure? Is it possible that we are witnessing a new march of the forces of socialization which will give a restored vigor and a new meaning to democracy?

Recuperative Powers of the New Deal. — All of these elements and more injected seeming hazards into private business and industry during 1933 that were new to this generation though a study of the history of every major depression of record, even unto biblical days, discloses in the present dilemma and the consequent need for governmental intervention novelty only in degree and not so much in kind. Thus when we look at the recorded facts in the manufacturing world during 1933 it is little wonder that we find statistical evidences of the jittery conditions of the times. And yet withal, the industrial record for the year as a whole showed striking recuperative powers largely traceable to the instruments of the New Deal.

THE INDUSTRIAL OUTPUT

Index Fluctuations.—The Federal Reserve Board index of industrial output adjusted for seasonal variations fluctuated during 1933 from a low of 60 (1923-25 average=100) recorded for March to a high of 100 registered in July, a net gain of about 67 per cent in the rate of physical output of the products of mine and factory in the short space of four months. To complete the picture of industrial jitters it appears well to indicate also that the index for the first month of the year stood at 65 and that by the final month of the year industrial production had receded from the fever heat of midsummer to an index of about 80.

Inventories. — Averaged for the full year 1933 the industrial production index was about 78 as contrasted with a monthly average of 64 for the year 1932, a gain in physical output of about 22 per cent between the two years. At the same time stocks of industrial commodities, at primary points, which at the end of 1932 stood at an index of 153 in relation to the average of 1923-1925 as 100 were about 165 at the 1933 year-end, a gain of about 8 per cent. Thus industrial inventories at the year-end were about 65 per cent above the average in the years 1923-1925 while production for the year 1933 was about 22 per cent below its average; this indicates that considerable maladjustment still exists.

Manufacturing and Mining Comparisons. — Taking manufacturing production alone, as apart from mineral output, the 1933 monthly indexes as adjusted for seasonal influences, fluctuated between a low of 56 for March to a high of 101 for July, a net gain in the four months amounting to 80 per cent. For January this index stood at 64 while for December it approximated 77. The index of mining production in January was 73 while for December it was about 80. Curiously enough the low point for the year in mineral production, allowing for seasonal considerations, occurred in April, after the lifting of the National Bank Holiday. While in the case of manufacturing, progressive declines were shown for each of the months of the first quarter, progressive monthly gains were shown during the same period in the mining index. Another divergence between the two component parts of the industrial production index, of interest, is observable in the fact that for manufacturing, at its lowest ebb in 1933, the index was 44 per cent below the average level of 1923-25 while for mining the index at its lowest was only 28 per cent below the monthly average of 1923-25. This becomes of increasing importance when contrasted with the indexes of commodity stocks for each of the two branches of industry. In the case of manufactured goods the index of stocks at the end of 1932 was 4 per cent below the 1923-25 average while at the 1933 year-end it stood at about 10 per cent above; in the case of the metals (no broader index to include all minerals being available) the commodity stock index at the end of 1932 was 9 per cent above the 1923-25 average while at the end of 1933 this index stood at about 22 per cent above.

Depletion of Stocks.—Hence, it is seen that the drastic curtailment in the production of manufactured goods during the winter of 1932-1933 actually resulted in a sizable shrinkage in the inventories of manufactured products in the hands of manufacturers to such an extent where replenishment of the even more depleted stocks in the hands of dealers required increased production schedules. This of course was hastened by the uncertainties surrounding probable increased costs of production under the NRA as well as by threats of inflation, both apparent and real for it was not until June, 1933 that the stocks index of manufacturers reached the 1923-25 average. It is of value, too, to indicate that stocks of consumer's goods in manufacturers' hands were much more depleted than was the case in producer's goods and that the increased production schedules largely resulted from this depleted condition in consumer's goods though it must be stated that producer's goods production gains were significant.

STEEL PRODUCTION

For steel, 1933 showed a gain in output of about 71 per cent as against the low record for 1932 but the output was about 10 per cent below the quantitative volume of 1931. Peculiarly enough the increased production between 1932 and 1933 cannot be entirely accounted for by tracing production through distributive and consuming channels, even allowing for a sizable increase in the takings by the automotive and related lines. Hence, inferentially, it appears that manufacturers' stocks of iron and steel must have materially increased because of the large gain in production schedules which cannot otherwise be entirely accounted for. For automobiles, the 1933 production volume was somewhat more than 40 per cent greater than in 1932 but the output was about 20 per cent below the 1931 production total.

FOOD PRODUCTS

The 1933 index for the production of food products showed a gain over 1932 of only about 7 per cent; a gain of about 2 per cent, too, was shown as compared with 1931, while the index for 1933 was practically at the 1930 level. It is well to point out that the demand for food products is relatively inelastic; with this in mind it is little wonder that the mean fluctuation in the index of manufactured food production between the years 1929 and 1932, the recent low year, was less than 12 per cent and that for 1933 the index of quantitative production was within about 5 per cent of the 1929 level. It is of additional interest, too, to indicate that the food products output for 1933 was only about 7 per cent below the 1923-1925 average; contrast this with, let us say, iron and steel where the decline from the same base period was in 1933, on top of a spectacular percentage gain over 1932, still about 46 per cent.

SHOES, TEXTILES AND OTHER PRODUCTS

Shoe production gained about 13 per cent in 1933 as contrasted with 1932. The consumption of wool increased by about 35 per cent while the consumption of cotton gained about 27 per cent over the previous year. Strangely enough deliveries of silk to consuming establishments fell off about 14 per cent but this is largely to be accounted for by the spectacular increase in the use of rayon, a phenomenon partially explainable by the facts of the depression itself. Cigarette consumption gained by practically 8 per cent but cigar consumption suffered a decline of about 3 per cent from 1932. Meltings of sugar increased by 8 per cent while the production of meat gained by about 12 per cent. Curiously enough the output of automobile tires only increased by 10 per cent though the production of automobiles gained, it will be recalled, upwards of 40 per cent. This is partially explainable by the fact that the tire industry was filling orders out of its large accumulation of tire inventories, which from the end of 1932 declined continuously until midyear, 1933, when the depletion amounted to about 13 per cent. From June, 1933, forward to the end of the year inventories of casings in manufacturer's hands mounted continually until by the end of the year they were higher than at any time since May, 1932.

EFFECT OF PUBLIC WORKS PROGRAM

The construction industry was given a renewed hope during 1933 by the Public Works Program. Under the provisions of the NIRA the program carried with it an appropriation of $3,300,000,000. By the end of 1933 this huge sum was almost completely alloted but not more than $400,000,000 of it was actually paid out by the Federal Treasury for either building materials or labor. It remained for 1934 to translate the bulk of the allotments into the much needed increase in the purchasing power of the masses. In recognition of the need for quickening the pace of the public works program during the closing weeks of 1933 the Government created the Civil Works Administration with an allocation of $400,000,000 to provide employment chiefly to those previously carried directly on relief rolls. All these governmental efforts produced a decided spurt in construction contracts during the final half of 1933. Though at midyear contracts were running at a rate 35 per cent behind 1932 according to data of F. W. Dodge Corporation a gain for the last half of 1933 was scored of sufficient size to bring the year's total to within about 6 per cent of the total for 1932.

CONSTRUCTION

Gains in Contracts.—It is significant to indicate, too, that gains in
contracts were shown in private co
struction in the last half of the ye
largely resulting from the impetus a
forded by the liberalization and u
timate repeal of prohibition. All the
gains in so important an item in th
capital goods field as is constructio
would ordinarily be construed as
harbinger of better times, but whe
we consider that of the 1933 total
construction contracts about 65 pe
cent were publicly-financed, chiefly b
the Federal Government, our pictu
takes on a different complexion. Th
is so because this work must be pai
for either by taxation direct or mo
remote through the increase of publ
debt. Indeed the situation become
more complex when we consider th
prospects for 1934 and the probab
extension, perhaps a doubling, of th
1933 PWA program which might mea
that private construction may onl
account for about 20 or 25 per cen
of the total contract record for 193
which, regardless, is bound to b
larger than that turned in in eithe
of the two preceding years. Custom
ary sources for mortgage money,—
the savings banks, the building an
loan associations, the life insuranc
companies—have run dry. They can
not be expected to become importan
factors in real estate financing durin
1934 unless perhaps the Federal Gov
ernment may establish a Central Mort
gage System and even then that woul
require the availability of equit
money.

Building Materials.—These consid
erations have large bearing upon th
materials industries—cement, lumber
brick, sanitary ware, heating equip
ment and so on—for which the 193
prospects are materially improved a
a result of contracts already let an
those to be awarded during the firs
half of 1934 but beyond this poin
the situation appears quite clouded
At this point it is well to indicat
that by the end of 1933 the pric
index of building materials was almost 20 per cent higher than the general level of wholesale prices. This condition of maladjustment is ordinarily not conducive to any important advances in construction. At the same time as the year 1934 unfolds it is

probable that important labor difficulties will have to be met. These two factors are decided threats to any runaway boom in the construction industry.

CONCLUSIONS

Thus the year 1933 was a year when the downward spiral of productive enterprise and of deflation was arrested, perhaps only temporarily. It remains for the year 1934 and those immediately following to provide the answer, for it must be remembered that if the profit system is to be maintained industry will not give employment to labor indefinitely unless it can derive a profit from such. This presages a conflict as important as the monetary conflict that still looms large, unless our industrial and commercial organisms are willing voluntarily to provide a larger measure of economic security to the millions who have tasted the sour fruits of depression.

Today the nation's population growth rate, it must be remembered, is less than half as large as it was a decade ago. This can have only one meaning, if it is as permanent a change as it appears, and that is that henceforth our industrial development and progress must come more from an ever increasing rise in the living standards of our people than from population growth alone. In this most important respect the current depression is different from that which ever before has visited the nation. Hence the curative processes are sizably altered by the deep-rooted implications of an approach to a stationary population. This should be one of the many motivating forces behind economic planning, for a large cross-section of our population even now have neither the means to buy what they need nor the disposition to buy what they do not need. When we will bring the reciprocal wants and necessities between the masses of consumers and the masses of producers in approximate balance, then and then only will we have solved the riddle of economic maladjustments that all too often has plunged us headlong into depression.

ADMINISTRATION OF THE TARIFF

By J. D. Nevius

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THE BUREAU OF CUSTOMS

Organization. — The Customs organization consists of the field service and the Bureau headquarters in Washington. The field service is divided into 49 customs collection districts which are scattered throughout the United States and possessions. Alaska, Hawaiian Islands, Virgin Islands and Puerto Rico each compose one collection district. Each district consists of a headquarters port, and, in many instances, a number of sub-ports of entry, the administrative affairs of each district being supervised by a collector of customs. The total number of ports of entry is 282. Thirteen ports of entry have been abolished during the past year in the concerted efforts of the Bureau to curtail expenditures.

The Commissioner of Customs, with headquarters at Washington, is the administrative head of the service, and is appointed by the Secretary of the Treasury. The Commissioner is assisted by one Assistant Commissioner, two Deputy Commissioners, one General Counsel, two Assistants General Counsel, and approximately 200 other employees. On July 18, 1933, James H. Moyle, of Salt Lake City, Utah, was appointed Commissioner of Customs. Mr. Moyle served as Assistant Secretary of the Treasury during President Wilson's second term. The knowledge thus gained of departmental practice, together with the fact that he is a lawyer by profession, should aid him considerably in his arduous task of Commissioner of Customs.

Administrative Units.—The Bureau is divided into three units, viz., the Administrative Unit, the Legal Unit, and the Investigative Unit. The Administrative Unit is composed of four divisions: The Division of Fiscal Administration, the Division of Weighing and Engineering, the Division of Personnel, and the Division of Statistics. The Legal Unit is composed of five legal divisions: The Division of Appeals and Protests, the Division of Drawback and Bonding, the Division of Tariff Classification, the Division of Entry and Appraisement, and the Division of Tariff Classification.

Reduction in Personnel.—During the past year the personnel of the Customs Service has been reduced to the extent of about 1,000. This reduction was not the result of wholesale dismissals in the service, but was due to the natural turn-over; i. e., resignations, retirements, and deaths. The vacancies thus caused have been left unfilled in the interest of economy. This leaves the present personnel of the Service numbering approximately 9,000.

CUSTOMS FOREIGN SERVICE

Investigative Unit.—The Customs Service maintains offices in Canada, Europe, and the Orient. The officers in these foreign countries are constantly contacting foreign manufacturers to establish foreign market values or export values of merchandise shipped to the United States.

CUSTOMS INFORMATION EXCHANGE

The Customs Information Exchange is the medium used by the Customs Service for gathering information and disseminating it to its officers. The following figures will give a fair index of its activities during the past fiscal year:

Appraisers' reports of value received	12,436
Appraisement appeal reports received	2,391
Changes in value circulated	2,438
Requests for investigations abroad	1,551
Reports received in response to requests	1,913
Reports received covering original investigations	5,915
Differences in classification reports	545

In addition to the documents indicated in the above table, the Customs Information Exchange prepares and distributes monthly index cards covering Treasury Decisions, drawback decisions, and cards covering copyrighted books. It also issues weekly circulars giving dates of the sailings of vessels from foreign ports with the dates upon which they are due to arrive in the United States, this being for the use of Customs officers throughout the Customs Service.

TARIFF CLASSIFICATION

Sugar.—One of the most important cases which has arisen in years originated in the Division of Tariff Classification, one of the legal divisions of the Bureau mentioned above, and was developed therein. This case involved the proper classification of sugar diluted with water and testing approximately 48 sugar degrees, the commodity being prepared in Cuba for importation into the United States where the sugar was to be extracted and refined. This was claimed to be a sugar syrup, dutiable at ¼ cent per gallon, with a 20 per cent deduction by reason of the Cuban reciprocity treaty, while the Bureau held it to be dutiable as sugar at 1.7125 cents per pound, which is approximately 70 times as great as the rate claimed. The case was taken to the United States Customs Court by the importers where a decision was handed down in favor of the Government. The importers, being dissatisfied, then appealed to the United States Court of Customs and Patent Appeals, but this court affirmed the lower court's decision. The importers then attempted to carry the matter to the United States Supreme Court by a writ of certiorari, but this the Supreme Court denied. The importance of this case is apparent when it is considered that authorities estimate conservatively that this ruling will save the Government at least $100,000,000 a year in revenue.

CUSTOMS COLLECTIONS

Decrease in Receipts.—Under the 1930 Tariff Act, supplemented by the Revenue Act of 1932, customs receipts for the fiscal year 1933 amounted to $250,000,000, this being the smallest collection since the World-War period, 1915-1919, when lower tariff rates were in effect. The decrease was 23.5 per cent under the fiscal year 1932, notwithstanding the fact that $11,000,000 were collected on lumber, coal, petroleum, and copper importations under the provisions of the Revenue Act of 1932. However, a decided upward trend in receipts has become apparent during the last few months. The total amount collected and covered into the Treasury as Customs receipts does not include tonnage tax, head tax, and miscellaneous collections for other bureaus of the Government made by the Customs officers and deposited as receipts for the appropriate bureau or service. The decrease in Customs revenue during the past fiscal year is attributable in a large measure to a further decline in commodity prices, and in a lesser degree to a decreased volume of importations.

Value of Free Entries.—The value of importations entered free during the last year was 64.4 per cent of the total value of all importations, as compared with 66.7 per cent for 1932 and 69 per cent for 1931.

Classified Imports.—Practically all classes of general imports participated in the decline which amounted to approximately $562,000,000, or, 32.5 per cent from 1932. The largest proportionate decreases occurred in crude materials and finished manufactures. In these two general classes the decreases were 39.7 per cent and 39.5 per cent, respectively, whereas importations of semi-manufactures decreased 33.8 per cent. Approximately 50 per cent of the duties during the past several years have been collected on cane sugar, unmanufactured tobacco, raw wool, wool manufactures, cotton manufactures, and silk manufactures.

CUSTOMS RECEIPTS AND REFUNDS
(Fiscal Years 1932 and 1933)

	1932		1933	
Receipts:				
Duties		$326,448,358		$250,501,722
Miscellaneous—				
Sale of unclaimed merchandise and abandoned goods	$32,410		$39,356	
Fines and forfeitures	1,251,381		622,421	
Liquidated damages	34,535		23,598	
Sale of seizures	69,648		41,756	
All other customs receipts	81,613		71,707	
Total miscellaneous		1,469,587		798,838
		$327,917,945		$251,300,560
Refunds:				
Excessive duties	5,444,373		4,923,378	
Drawback payments	11,455,874		7,590,971	
Total refunds		16,900,247		12,514,349
Net customs receipts from all sources		$310,017,698		$238,786,211

SMUGGLING

Watch Movements.—The smuggling of watch movements during the past year increased to such an extent that legitimate importers were unable to compete successfully and found themselves without a market for their wares. This merchandise may be easily concealed on the person in quantities of 200 or more without attracting attention, and the successful smuggler of this number of movements can save approximately $300 in duties. In order to combat this wave of the smuggling of watch movements a concerted drive was made by Customs Agents with the result that movements seized and in process of forfeiture represent a value of $130,000. Convictions of the more notorious offenders have been obtained, and persons having intimate knowledge of the conditions in the watch trade report that these efforts on the part of Customs agents have resulted in driving many of the illegal operators out of business, thereby providing a better market for the merchandise legitimately imported.

Narcotics.—Every field office of the entire Customs Service continued its campaign against the smuggling of narcotics. During the fiscal year 1933 a total of 143 seizures was made, valued at $68,283.61. The detection and prevention of the smuggling of narcotics is probably one of the most difficult problems with which the Customs Service must contend, and the control is still unsatisfactory. The system of close coöperation between all Federal enforcement agencies which was set up in 1931 has been continued with marked success, with the result that many large operators have been apprehended.

Seizures. — The total number of seizures for all violations of the Customs laws during the fiscal year 1933 aggregated 45,690 as compared with 68,138 during the previous year, a decrease of 33 per cent. Much of this decrease was due to the smaller amount of lottery matter and other prohibited articles which constituted more than half the seizures during 1932, but which declined in number to a greater extent than any other type of seizure. There were apprehended, during the past year, for violations of the customs laws a total of 1,148 automobiles, 389 boats, and 30 airplanes. In addition 452 seizures were accomplished by Customs officers and delivered to other agencies of the Government for prosecution. Six hundred and forty-six persons were detailed for violation of immigration, prohibition and other laws.

DUMPING

During the past year the number of complaints by American manufacturers against the dumping of foreign goods into this country arose to the highest level since the passage of the Anti-dumping law in 1921. However, through the coöperation of both the domestic and foreign officers of the Customs Service the great bulk of these cases has been disposed of. In many instances the foreign competition was intensified by the depreciation of the exchange of the exporting country.

DRAWBACK

Approximately 2,000 drawback investigations have been made during the past year. These investigations required the ascertaining of the manufacturing processes of almost every class of industry using imported merchandise, the rendering of assistance to manufacturers in the formation of a system of records whereby the identity of the imported merchandise may be maintained from the time of importation throughout the manufacturing process to the exportation thereof. Drawback payments during the fiscal year 1933 amounted to $7,701,647.88, somewhat less than the payments made in 1932.

TRAFFIC

The traffic from foreign countries by vessels, highway vehicles, railways, and aircraft was less in volume than in the preceding fiscal year. The number of vessels decreased 9.5 per cent, automobile and other vehicles decreased 11.5 per cent, and airplanes 11.5 per cent. There was also a decline in passenger traffic into the United States, except in the case of airplane passengers which increased 7.8 per cent. More than 9,000,000 pedestrians entered the United States over the international borders and a total of 40,824,894 persons were subjected to the Customs formalities upon entering the United States.

MARKING

Section 304 of the Tariff Act of 1930 requires that "Every article imported into the United States, and its immediate container, and the package in which such article is imported, shall be marked, stamped, branded, or labeled, in legible English words, in a conspicuous place, in such manner as to indicate the country of origin of such article, in accordance with such regulations as the Secretary of the Treasury may prescribe.'' This section also contains a provision for the levying of 10 per cent additional duty if at the time of importation any article or its container is not marked, stamped, branded or labeled in accordance with the requirements of the section. In addition to the general marking provisions, there are certain paragraphs of the Tariff Act containing provisos in the form of special marking, such as the ''cutlery'' paragraph, the paragraph providing for scientific and laboratory instruments, that, providing for surgical instruments, and several others. These provide that all of the articles specified therein, when imported, shall have the name of the maker or purchaser, and beneath the same the name of the country of origin, die sunk legibly and indelibly upon the blade, or shank or tang of each and every blade. In the case of surgical, scientific and laboratory instruments this marking is required to be die sunk conspicuously and indelibly on the outside, or if a jointed instrument, on the outside when closed. The total number of importations brought into the country during the last year without being properly marked was 10,220. In 6,131 of these cases the goods were released after having been properly marked under Customs supervision; in 3,800 the goods were released as being incapable of being marked, and in 289 cases the articles were exported. The 10 per cent additional duty imposed resulted in the collection of $69,741.

UNITED STATES TARIFF COMMISSION

By Robert L. O'Brien

Chairman, United States Tariff Commission

FUNCTIONS UNDER THE TARIFF ACT OF 1930

General Sections.—The provisions of the Revenue Act of September 8, 1916, creating the Tariff Commission, as amended in the Act of 1922, were reenacted, with only minor modifications of the functions and duties of the Commission, in sections 330 to 338 inclusive, of the Tariff Act of 1930. Sections 330 to 335 inclusive cover the general powers and duties of the Commission. Section 336 of the Tariff Act of 1930 requires the Commission not only to report to the President as under section 315 of the Tariff Act of 1922, the results of investigations made pursuant to the section, but also to state its findings as to differences in costs of production of foreign and domestic articles and to specify changes in duties and classifications shown by the investigations to be necessary to equalize foreign and domestic costs. Section 337 of the act of 1930 continues the duties of the Commission with respect to unfair practices in import trade, taking the place of section 316 in the Tariff Act of 1922. Section 338 continued with some modification section 317 of the act of 1922 covering discriminations by foreign governments against the commerce of the United States. In addition to these general sections covering the powers and duties of the Tariff Commission, the act of 1930 also contained definite provisions, directing special investigations by the Tariff Commission.

Crude Petroleum.—The Commission was directed (under section 332[f]) to ascertain and report to Congress within eight months from the passage of the act of 1930, the approximate average cost per barrel of crude petroleum produced in the United States and in Venezuela, delivered to oil refineries on the Atlantic seaboard of the United States. This report was completed in February, 1931.

Domestic Value — Conversion of Rates.—Section 340 of the tariff law directed the Commission to ascertain, with respect to each of the *ad valorem* rates of duty, and each of the rates of duty regulated by the value of the article, specified in the act of 1930, an *ad valorem* rate which, if applied upon the basis of domestic value defined in the section would have resulted in the imposition, during the period July 1, 1927, to June 30, 1929, of amounts of duty neither greater nor less than would have been collectable at the rate specified in the act of 1930 applied upon the basis of value defined in section 402 of the act of 1922. The work in this investigation was completed and the report sent to Congress in June, 1932. (*See* AMERICAN YEAR BOOK, 1932, for summary.)

Synthetic Camphor. — The President is empowered (under par. 51 of the act of 1930) to proclaim a reduction in the statutory rate of duty of 5 cents per pound on synthetic camphor to 1 cent per pound, if at the end of stated periods the domestic production in quantity does not exceed certain specified percentages of the total domestic consumption. The paragraph provides that the Tariff Commission assist the President in making the investigation required, using the powers it may employ under section 336. The investigation to cover the first period named in the paragraph (Dec. 17, 1932, to June 16, 1933) has been completed.

Section 3(e) of National Industrial Recovery Act.—In addition to the duties of the Tariff Commission prescribed in the Tariff Act of 1930, section 3(e) of Title I of the National Industrial Recovery Act provides for investigation by the Tariff Commission at the request of the President to assist in carrying out the provisions of that section. This section deals with the power of the President to regulate imports which are making ineffective or seriously endangering the maintenance of codes or agreements under the National Industrial Recovery Act. Up to the time of the preparation of this material (Oct. 30 1933) no investigations under this section have been instituted.

MEMBERSHIP OF COMMISSION

On Oct. 15, 1933, the membership of the Commission consisted of Robert L. O'Brien, Republican from Massachusetts, Chairman; Thomas Walker Page, Democrat from Virginia, Vice Chairman; Edgar B. Brossard, Republican from Utah, and John Lee Coulter, Republican from North Dakota. The two vacancies on the Commission caused by the expiration of the term of Ira M. Ornburn, Democrat of Connecticut, and by the death of James W. Collier, Democrat of Mississippi, have not been filled.

ACTIVITIES UNDER THE GENERAL POWERS OF THE COMMISSION

Tariff Information.—Reports and surveys under the provisions of Section 332 issued by the Commission up to October, 1932, are summarized in THE AMERICAN YEAR BOOK for that year (pp. 464-69). During the current year many of the activities of the Commission have been on requests made by the Congress for information on tariff and related subjects. Summaries follow of the more important of the general reports that have been published.

Analysis of Foreign Trade in Relation to the Tariff.—This comprehensive study was made in response to Senate Resolution 325, adopted in January, 1933. The report is printed in three parts. Part I deals mainly with imports and shows the trend of imports in relation to production and height of duties. All the imports into the United States have been thoroughly canvassed. Separate lists group those imports which have declined or increased, and those representing a small proportion of domestic production. Another list shows the items which are more or less non-competitive and with respect to which foreign producers have an advantage. A further list arrays, by tariff schedules, the items for which the tariff rates exceed 50 per cent *ad valorem* according to the height of duty in 1931; special attention is given the agricultural raw materials by comparing the tariff rate with the *ad valorem* equivalent based on the average price of 1920-29, inclusive. Part II deals with exports. Separate lists show the exports which have decreased in quantity since 1929 and those produced in the United States with advantages which were factors in causing them to be exported in substantial quantities. Part III presents the range and variety of costs of production in 44 investigations, or roughly 40 per cent of the total number of cost-of-production investigations completed by the Commission since 1920. For each investigation for which range and variety of costs can be shown there is presented an introductory statement to show the rates of duty to which the product was subject, the period for which costs were obtained, the scope of the investigation, and such costs averages and comparisons of foreign and domestic costs as will provide a background for the information presented on the range and variety of costs. These statements are arranged by tariff schedules.

Tariff Bargaining under Most-favored-nation Treaties. — This report is part 4 of the material prepared in accordance with the provisions of Senate Resolution 325. Section I of this volume discusses the procedure under various conditions, while Section II furnishes a complete list of the commercial treaties and agreements of the United States to April 1, 1933, and Section III provides a list of the commercial treaties of all nations in force on Jan. 1, 1933. The report, in specific reply to the Senate's request for information on ways and means of tariff bargaining, draws attention to eight points for consideration. Historical, economic, and practical aspects of tariff bargaining under these headings are presented in the report:

Countries entitled by treaty or agreement to condition or unconditional most-favored-nation treatment from the United States.

Definition of conditional and unconditional most-favored-nation obligations, with illustrations.

Use of conditional and unconditional forms by the United States and by foreign countries.

Respective advantages of the two forms.

Methods of bargaining under conditional most-favored-nation treaties compared with methods under the unconditional form.

The padding of tariff rates in preparation for bargaining.

Summary of reciprocity experiences of the United States.

Fishery Products. — This survey covers all fishery products and by-products, both marine and fresh-water. It gives in addition to special sections on particular products a broad view of fisheries tariff problems as a whole. Annual world production of fish, the report shows, amounts to about 23,000,000,000 pounds. The United States supplies 10 per cent of the total. Norway and the British Isles supply about the same quantity as the United States; Russia produces almost twice as much as the United States, and Japan four times as much. Trade in fish, the report indicates, is governed in large measure by geographical abundance or scarcity of fish and the available supplies of other meats. In the United States the fishermen are obliged to throw overboard many kinds of fish because there is no market for them, and about one-quarter of the quantity landed is not used for edible purposes but converted into oil, meal, and fertilizer. In countries such as Japan, where there is a shortage of other meat, marine products are utilized to a much greater extent. There are 78,000 vessels employed in the United States fisheries half of which are power vessels. The fishermen employed number 124,000 and the workers employed in coastal fish factories number 86,000. The total investment amounts to about $300,000,000.

Duties and Equivalent Ad Valorem Rates on Imports from Principal Countries, 1931.—The purpose of the report is to show how the American tariff affects the imports of each leading country. It covers each country from which the imports in 1931 amounted to $10,000,000 or more in value, and in addition New Zealand, Egypt, and the Union of South Africa. The number of countries included is 34 and the imports from them represent about 93 per cent of the total from all countries. Data for 1931 and for 1929 covering 11 commodity groups are compared. The tables include total value of free and dutiable imports, the percentage dutiable, and the average rate of duty on free and dutiable articles combined, and also the average rate computed on dutiable articles only. Another group of tables show, for the same commodity groups, the total value of dutiable imports in 1931, the computed total amount of duties on them, and the average rate of duty. Detailed tables are also shown which give statistics not only for the 11 major commodity groups, but for numerous sub-groups and for the most important individual articles of importation; these detailed tables relate to both free and dutiable articles. In the introduction summary tables are given in which the data for the principal individual countries are brought together for comparison.

The Cigar Industry and the Tariff.—This report traces the United States tariff treatment of cigars from 1804 to 1930 and compares statistics of production, imports, and receipts from Puerto Rico and the Philippines. In the last year the subject was brought to the fore by the transfer by a large American company of its production of Habana cigars from Cuba to the United States. Another reason for active interest in the subject is the act to give independence to the Philippine Islands and the importance of cigars in our total trade with those islands. The statistics in this document tend to show that the domestic cigar industry as a whole occupies a strong competitive condition. With an annual production of between five and six and one-half billion in recent years, the United States cigar industry is among the largest and most favorably situated in the world. Exports of cigars are small and in the last few years imports have also decreased. In the fiscal year 1931-32 the imports constituted less than one-half of one per cent of the total number of cigars consumed.

Methods of Valuation.—In July, 1932, the President in accordance with the provisions of section 642 directed the Tariff Commission to make a survey of the various methods of valuation. The report was sent to the President in February, 1933. It discusses some of the advantages and disadvantages claimed for the various bases of value, including the present method used in the United States ordinarily referred to as foreign; the landed cost or c.i.f. value; domestic value; and American value, or the value of the domestic product which is like or similar to the imported product. (This report on valuation should be distinguished from the report of the Commission to the Congress in June, 1932, entitled "Domestic Value—Conversion of Rates," under the provisions of section 340 of the Tariff Act of 1930.)

Senate Resolution 334.—This resolution adopted by the Senate in January, 1933, requires two distinct studies by the Commission. The first part of the resolution directs the Commission to prepare an analysis of the composition of the import and export trade of the United States, a list of trade restrictions of foreign countries imposed since Jan. 1, 1922, upon imports from the United States, and other significant and competitive facts affecting the foreign trade of the United States.

Revision of the Summaries of Tariff Information is directed in the second part of the resolution. The staff of the Commission is now engaged upon this revision. The aim is to set forth in a comprehensive concise form with respect to each product a correlation of statistics of production, imports, and exports, to furnish data on prices, transportation, and marketing; and to give other information bearing on the tariff problems as well as the economic and competitive conditions. Previous editions of these summaries, which cover all paragraphs of each schedule in the Tariff Act, were issued in 1922 and in 1929. These intensive studies concern all the important import commodities of the country and have been extensively used during time of tariff discussion.

INVESTIGATIONS UNDER THE FLEXIBLE PROVISION

There was a marked decrease during the past year in the number of applications received under Section 336, the total for the year being about 40. Nine new investigations have been ordered but as previously noted most of the Commission's work has been upon general studies for the Congress.

INVESTIGATIONS OF UNFAIR COMPETITION

Provisions.—Under the provisions of section 337 of the Tariff Act the Commission is authorized to investigate alleged unfair methods of competition in the importation of an article or in the sale in the United States of the article. When the findings of the Commission justify it the President has the power to refuse entry of articles included in investigations for the purpose of this section, such exclusion of entry remaining in effect until otherwise ordered by the President. The section also provides that an appeal may be taken from the findings of the Commission by the importer or consignee upon a question or questions of law before the findings are sent to the President. The number of investigations ordered by the Commission under the provisions of this section has increased during the past year.

Asbestos. — In the investigation relative to the methods employed in the importation and sale of asbestos produced in Soviet Russia, the Commission reported to the President that the existence of unfair methods or acts in the importation or in the sale of the products covered in the investigation had not been established. The temporary order of exclusion which had been in effect during the investigation was therefore lifted.

Slide Fasteners.—At the time this investigation was instituted in August, 1932, upon recommendation of the Commission and in accordance with the provisions of the section, the Secretary of the Treasury, upon request of the President, instructed collectors of customs to exclude temporarily from entry, except under bond, certain slide fasteners pending the completion of the investigation. This order was later modified to include only slide fasteners of specified construction. This latter order covered slide fasteners whether or not forming parts of articles. After the findings and recommendations in the investigation were sent to the respondents in the case, as provided for in the law, an appeal from these findings was filed in the U. S. Court of Customs and Patent Appeals in accordance with the rights under the section of the importers and consignees. A decision on the question of law presented in that appeal is necessary before the Commission can take further action in the matter.

Oxides of Iron for Pigment Purposes.—This investigation was instituted in February, 1933. As in the case of slide fasteners a temporary exclusion order was issued by the Secretary of the Treasury prohibiting from entry temporary imports of certain iron compounds, suitable for pigment purposes. Upon the completion of the report in the investigation, copies of the Commission's findings and recommendations were sent to the respondent. An appeal was likewise filed in this case, and the Commission is thereby prevented from taking further action until there has been a decision concerning the appeal.

Other Investigations. — There are investigations now underway of alleged unfair methods of competition in the importation and sale of phosphates and apatite, parts of slide fasteners, and certain cigar lighters. Imports of parts of designated types of slide fasteners and of certain cigar lighters have been excluded from entry pending the results of the investigations. In addition to these formal investigations the Commission has considered several complaints and settled them informally.

XIII. MANUFACTURES AND TRANSPORTATION

THE EXPORT AND IMPORT BALANCE

By Ralph A. Young

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FOREIGN TRADE EQUILIBRIUM

From the earliest records of the foreign trade of this country until 1873, the American balance of trade was typically on the import side. Since 1873, the balance has been characteristically on the side of exports. Various explanations have been advanced for the persistence of an import balance during the first three quarters of the Nineteenth Century, but they converge, for the most part, upon the theme that, as a new and growing country, not only were we borrowing capital continuously abroad, but immigrants were bringing quantities of capital with them, and that the merchandise import balance roughly measured the net balance of capital imports.

The appearance of an export balance about 1873 was held to reflect the arrival of the United States at a stage of industrial development where annual interest payments and principal repayments exceeded new capital borrowing from abroad, although the depression of 1873 clearly hastened the transition. After 1896, large net expenditures of American tourists abroad, the growing volume of immigrant remittances, and the appearance of American investments in foreign areas, offered additional explanation of the export balance. During the period of the World War, our immense international capital lending became the bulwark of the export balance, and, in the post-war period, additional lending in international capital markets on a gigantic scale, plus the steadily mounting wave of tourist travel (giving us a service import balance) have received the greatest emphasis as explanations of the export balance.

EXCESS OF EXPORTS: 1933

Trade statistics covering the first ten months of 1933 indicate that the United States has again incurred an export balance of trade. The export balance, however, was smaller than in any year since the early nineties. Amounting to but $88,000,000 from January through October, it was only 41 per cent as great as the export balance for the same months of 1932, and 14 per cent as large as that for the similar period of 1929.

Despite the decline of the export trade balance, however, the dollar volume of American exports showed consistent improvement from the early months of the year, when the country was apparently at the lowest ebb of the depression. For the ten months ended in October, exports (including silver) totalled $1,316,000,000, which was only $36,000,000, or 3 per cent less than for the like period of 1932. How conspicuous a change this reflected in the course of American export trade may be appreciated by recalling that the decline for the two comparable periods from 1931 to 1932 was $717,000,000, or 35 per cent; from 1930 to 1931, $1,256,000,000, or 37.5 per cent, and from 1929 to 1930, $1,114,000,000, or 26 per cent.

The improvement in the dollar volume of American import trade was necessarily more marked than in the case of the export trade to produce so sharp a reduction in the export balance from the preceding year. Imports (including silver) in fact, amounted to $1,178,000,000 for the first ten months, an increase of $91,000,000 or 8 per cent from 1932. Contrasting the change in the dollar total of imports for like periods from 1929 to 1932, we find a decline of $677,000,000, or 37 per cent, from 1931 to 1932; of $872,000,000, or 32 per cent, from 1930 to 1931, and of $1,119,000,000, or 31 per cent from 1929 to 1930.

MEANING OF THE 1933 BALANCE

In the light of historical experience, the decline in the export balance of merchandise trade for 1933 might be interpreted in three ways. First, it might be regarded as a temporary phenomenon, typical for a period of world trade recovery. The American export balance declined notably in the years immediately following the two preceding periods of international trade depression. Second, it might be viewed as a further development in the direction of a change in the balance from one of exports to one of imports. The cumulative effect of the operation of the country's tariff policy and its international creditor position, it has long been admitted, must eventually lead to this result.

In addition, the tariff and currency policies of foreign countries, especially debtor countries, have increasingly contributed to this end. Finally, the decline in the export trade balance might be interpreted as the product of forces set in motion by the suspension of gold payments by the United States in April, and by the sharp depreciation of the dollar in terms of foreign currencies and gold which followed in the train of that action. The dollar, it will be recalled, fell to a discount of 32 per cent from the end of April to the middle of July, recovered to a discount of 25 per cent in August, and declined again through September and October to a discount of from 36 per cent to 38 per cent.

While the most acceptable explanation of the decline of the export trade balance is doubtless a combination of these three interpretations, there is good reason to ascribe the greatest weight to the suspension of gold payments and the ensuing decline of the foreign exchange value of the dollar. Sharp dollar depreciation on the foreign exchange markets operated to produce a disparity between the internal and external purchasing power of the dollar for the reason that domestic commodity prices did not rise proportionately as the exchange value of the dollar declined. Under these conditions, foreign importers were placed in a position where any decline in the foreign currency value of the dollar tended to make possible the purchase of American commodities more cheaply. American importers, on the other hand, were compelled by any rise in the dollar cost of foreign currencies to pay higher dollar prices for foreign imports. So long as the dollar showed any tendency to fall to a still greater discount in terms of foreign currencies, therefore, foreign buyers found it expedient to delay American purchases, in so far as it was possible. Conversely, there existed an incentive for American importers to hasten foreign purchases.

Since the course of the exchange value of the dollar was almost continuously downward from the date of the suspension of gold payments to the middle of July, the initial impact of dollar depreciation was to stimulate imports at the expense of exports. Naturally, when dollar depreciation gave way to a slight dollar appreciation in July and August, reverse influences tended to be felt by merchandise trade. In September and October, when the course of the dollar was again downward, merchandise imports were once more promoted at the expense of exports.

The net effects were hardly more than moderate in the latter months, however, and for two reasons; first, the decline of the dollar was less precipitous than in the earlier period of depreciation; second, a condition of disparity between the internal and external purchasing power of the dollar had been established already by the earlier sharp depreciation of the dollar. This disparity was of great importance both to import and export trade. At one and the same time, it operated as an exchange barrier to imports and exchange bounty to exports, and, hence, tended to counteract the influence of a further falling of the foreign exchange value of the dollar on imports at the expense of exports.

SETTLEMENT OF THE FAVORABLE MERCHANDISE BALANCE

Since the suspension of gold payments by the United States, the mechanics of adjusting or settling the merchandise balance have been altered considerably. Under gold standard conditions, they consisted of the chance offsetting of the merchandise balance by the balance for tourist and other service payments and by the balance for capital plus capital income payments, with the net gold movement covering left-over residuals. The organization of the exchange markets assured that temporary adjustment would be effected without undue friction, while long-run equilibrium was maintained by the repercussions of gold movements on currency and bank credit; thence on the structure of prices and incomes, and finally, on the merchandise, service, capital and capital income balances.

Under the conditions obtaining since April, gold movements have been impossible. The only manner of equating the merchandise balance at a given foreign exchange value for the dollar, therefore, has been that of a chance equating with the service, capital and capital income balances. In case of failure, the only alternative has been a change in the dollar's international value, *i.e.*, a depreciation or an appreciation of the dollar in terms of foreign currencies. Since no limits existed for such changes in the dollar's value, naturally these other balances came to be greatly influenced by the dollar's changing value and in turn exerted pressure making for such changes. Thus, a sort of speculative confusion came to grip and dominate the course of all balances.

THE SERVICE BALANCE

What is generally regarded as the service balance of trade is that balance remaining from offsetting international payments for freights, government expenses, tourist travel, immigrant remittances, royalties and similar so-called "invisibles." Consistently "unfavorable" in the post-war period, this balance has regularly exceeded the "favorable" merchandise balance since 1923. It has been, therefore, an important source of dollars, enabling foreigners to meet their excess of merchandise imports from the United States without shipments of gold. It has likewise been an important source of dollars for facilitating interest and capital payments by foreigners to the United States. Its peak was reached in 1929 when the total net import service balance aggregated $1,166,000,000, but the effects of the depression on the main service components (net shipping, tourist and immigrant payments) brought this total down to $650,000,000 in 1932.

Because of the contracted volume of international trade and shipping, the persisting low level of American incomes (the ultimate source of tourist and immigrant payments), and unsettled political conditions abroad (inhibiting Americans from undertaking foreign tourist travel), there was every reason to anticipate a further decline in the import service balance for 1933. Dollar depreciation following the suspension of gold payments served to insure that a new decline would take place, mainly because of its consequences to tourist payments, which contribute most to the "adverse" service balance. Becoming serious at a time when the seasonal tourist movement was approaching its peak, dollar depreciation so raised the cost of foreign travel and residence as to reduce considerably the amount of tourist travel that would otherwise have occurred. In addition, it operated to cut short the travels and foreign residence of Americans already on foreign soil by reducing the amount of foreign currency that could be purchased with a given number of dollars. The resulting contraction of tourist expenditures by Americans abroad, together with reduced service remittances caused by the generally low state of trade and incomes, and no noteworthy change in the purchases of American services by foreigners, consequently, involved a smaller net import balance on service account than in any post-war year.

THE CAPITAL BALANCE

The capital balance for 1933, the annual balance of all long- and short-term investment transactions between the United States and foreigners, was substantially on the debit side of the international accounts. This was not the same reasons, however, that we have frequently experienced an "import" balance of international capital transactions in the past. Rather, it was the product of the uncertain risks facing capital investment in America, growing out of the financial panic of the first quarter of the year and the inflationary monetary program of our government, which became apparent after the suspension of gold payments.

At the outset of the year, American investment in foreign securities and properties was at a virtual standstill, and a small volume of liquidation of American foreign investments was in progress. A similar condition characterized foreign investment in American securities, with the exception that a considerable liquidation of foreign holdings of American securities, long- and short-term, was taking place because of financial uncertainties. Banking panic, the suspension of gold payments and the depreciation of the dollar completely altered the former condition, and accentuated the latter. A veritable flight from the dollar developed for the purpose of preserving the gold value of investment principal. Precise data reflecting the dollar volume of the capital outflow so induced is almost wholly lacking, but both newspaper and financial opinion in this country and abroad agrees that it has been substantial. Practically the only offset to this outflow of capital was that originating from capital repayment and from repurchases of foreign dollar obligations on the part of foreign debtors. Capital repayments by foreigners, however, were much reduced from previous years by defaults both new and cumulative. While dollar depreciation tended to stimulate repurchases of their dollar obligations by foreigners in cases where dollar bond prices, already at default levels, showed no disposition to rise as the foreign exchange value of the dollar declined, it is improbable that a very great volume of such repurchases were effected.

THE CAPITAL INCOME BALANCE

The balance of international payments on capital income account was necessarily favorable or inward because of the huge net international creditor position of the United States. It was undoubtedly less favorable, however, than in any recent year, probably around a third of the balance for 1930, which totalled $857,000,000 (including all payments on governmental debt accounts as part of the balance). The reasons for this further decline of the capital income balance may be indicated with fair accuracy.

On the creditor side, new defaults, whole and partial as in the case of German debtors, were added to the accumulated total of defaulted foreign debts; payments of foreign government debtors to the United States Government were on a purely token character, if made at all; earnings and dividends from American-owned factories and properties located in foreign countries were negligible, and some liquidation of foreign assets held by Americans took place. On the debtor side, a smaller volume of payments to foreigners resulted from the substantial liquidation of foreign holdings of American stocks, bonds and other investments that apparently occurred accompanying the financial panic of the first three months of the year, and the depreciation of the dollar in later months. Thus, although both sides of the capital income account of the international balance of payments were reduced from previous years, the reduction was greater on the creditor than on the debtor side of the account.

Some qualification of this conclusion is of course required in consequence of the flight of American capital to foreign markets in consequence of inflationary uncertainties and dollar depreciation, thereby adding to the nation's creditor position. Since this capital, however, was sent abroad with the object of maintaining its gold value and as a hedge against domestic inflation, it was probably maintained to a large extent in the form of gold and non-interest yielding bank balances in foreign markets and hence did not serve to increase the income receivable from foreign sources. To the extent that it was invested in foreign interest and dividend yielding assets, it of course was a factor tending to offset the influences operating to reduce the income due on creditor account.

THE GOLD BALANCE

With the suspension of gold payments and the embargo on gold exports effective as of March 6, 1933, gold payments ceased to play their accustomed role in settling the unadjusted balance of the various classes of international accounts. Nevertheless, large gold shipments and earmarking operations on the part of foreign central banks, prior to that date, had made for a substantial gold export balance, amounting in fact to as much as $246,000,000. While subsequent adjustments were made which reduced this balance slightly, the net exports for the first ten months of the year, including net earmarking of gold, totalled $234,000,000.

CONCLUSIONS

Viewing the 1933 balance of international payments of the United States as a whole, one definite conclusion may be drawn, namely, that the merchandise trade balance was more than offset by the other balances, separately analyzed in the foregoing discussion as adjusting or settling balances for the excess of export trade. This was true, moreover, in spite of the fact that the balance of capital income payments on the international investment account could again be described as ‘‘favorable’’, and in spite of the fact that a large gold export balance was established in the short period prior to the suspension of gold payments and embargo on gold exports. With gold payments for the dollar suspended and gold exports embargoed for the greater part of the year, the only manner of equating the various balances was by means of a depreciation of the foreign exchange value of the dollar, and at the end of the year this depreciation of the dollar amounted to approximately 36 per cent in terms of the French franc.

Significantly enough, as this short review has fully disclosed, many of the balance of payments forces tending to bring about dollar depreciation against foreign currencies were in themselves conditioned and promoted by the possibilities and fact of foreign exchange depreciation for the dollar. This arose from the circumstance that once the dollar was made a free or inconvertible currency, speculative judgments as to its future foreign exchange value came to influence and even dominate the course of international transactions which give rise to the stream of international money remittances composing the balance of international payments.

CONDITIONS OF INTERNAL COMMERCE

By Ada Lillian Bush

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BASIC PRODUCTION

Arrested Declines. — After long-continued declines, extending through the first half of 1932, production rallied slightly in July as recounted in our review for that year (*see* American Year Book, 1932). The seasonal slowing down at the year-end degenerated into a persistent slump throughout the first quarter of 1933. This was attributable in part to generally unsettled conditions incident to impending political change and weakened credit facilities. Industrial production, responding to enheartening action by the new Administration, rose abruptly toward the end of March and followed a rising course for the next four months. Production trends then swerved downward and continued to drop through August, September and October. The influence of recovery measures, together with normal recuperative forces, tended to arrest this decline before it reached the low point of the preceding year. Comparable index figures for both years given in the Commerce Department's *Survey of Current Business* reveal that, despite the drop from the July peak, production in October, 1933, was 16 per cent higher than for the same month in 1932. Totals for the first eleven months of each year show that production in 1933 was 20.3 per cent above 1932.

SUMMARY FOR MAJOR INDUSTRIAL GROUPS

With a continuation of recessions in October the iron and steel tonnage produced was still nearly double the output for the same month in 1932 and 36 per cent higher than in October, 1931. Index figures for corresponding eleven months of each year show for that industry a 1933 increase of 68.8 per cent. The first week in December brought an upward movement in steel-ingot production. Continued improvement in the steel industry featured developments in succeeding weeks of the year. The number of automobiles produced during the first eleven months of 1932 was 48.4 per cent greater than for the same period in 1932. Though delayed output of new models slowed up production in December, preliminary estimates claim for the whole year a considerable gain over 1932. The records for corresponding eleven-month periods in 1932 and 1933 show gains also in the output of minerals, lumber, agricultural implements, and textiles. The value of construction during eleven months of 1933 was 17.1 per cent below the corresponding period in 1932. Contracts awarded in November were followed by sharply increased construction activity during succeeding weeks of 1933. Though public works accounted for the major part of the increase there was a contra-seasonal advancement in residential construction. Weekly business indicators for December stress more than a seasonal decline in textile production.

DISTRIBUTION MOVEMENT

The total number of freight-car loadings through November of 1933 exceeded 1932 by 2.7 per cent. A sharp rise occurred in the week of Dec. 9 and this upturn held through succeeding weeks. In passenger-automobile registrations the decrease from the midsummer peek through October, 1933 was 30 per cent less than the drop during the corresponding period in 1932. For the first eleven months, total passenger-car registrations in the current year were 33.3 per cent above 1932. Price gains account for a part of the increase in exports of automobiles, but within the last quarter of 1933 there was also more than a seasonal increase in the quantity exports of cars and a wide variety of other commodities. Department store sales through November were down 4.6 per cent from the level of the preceding year's record. However, authoritative reports for December indicate a large increase over the last month of 1932 in sales of consumer goods through department stores and other retail outlets.

EMPLOYMENT AND PURCHASING POWER

Employment and purchasing power made notable gains from April through July. Recessions in the number of people at work and in factory payrolls occurred in August and September. The usual seasonal movement for factory employment in October was downward. After adjustment for seasonal variation the *Federal Reserve Index* showed gains in October for 13 major groups. Factory employment and payrolls in October were both considerably higher than for the tenth month of 1932. In November there was a drop from the October level. Payroll totals for the first eleven months of 1933 were reported as 2.8 per cent above the corresponding months of the preceding year. Late December reports indicated strengthening of purchasing power through public works and the efforts of the Civil Works Administration.

PRICES, CREDIT AND FINANCE

Prices staged a rapid upturn after March, with considerable disparity among the various commodity groups. The wholesale price index showed a recession in October with steady recovery, culminating in a price level near the middle of November that was a new high for the year. Farm crops were marketed at prices considerably higher than in the previous year. Although for ten principal crops there was a decrease in the volume harvested, the Department of Agriculture's final check showed an increase of 42 per cent over 1932 in the farm value of the 1933 harvest. The Farm Credit Act provided improved credit facilities to the farm population.

Stock prices moved irregularly up and down through the year. The stock market during the early part of December showed considerable strength. Year-end recessions were indicated. During December, bond prices were generally downward. The period since the banking moratorium of early spring has been marked by continuous returns of currency from hoards. The gold reserves behind outstanding bank credit have been strengthened. The position of banks improved steadily since the third month of the year. Commercial failures during 1933 reached the lowest point in 13 years.

THE OUTLOOK FOR 1934

The year 1933 was one of action and accomplishment. Proof of progress is in the record of failure to fall below the depths of depression that characterized its beginning. The statistics that have been submitted give some evidences of further gains though the extent of their significance is a matter of opinion in view of the frankly experimental nature of methods used to force improved business conditions. Legislation passed by the Seventy-third Congress created various recovery measures such as the National Recovery Administration, the Agricultural Adjustment Administration, the Federal Emergency Relief Administration and the Public Works Administration. Details of this legislation and steps leading to the application of a new money policy are discussed elsewhere in this volume. Here it will suffice to say that unprecedented measures were applied to unparalleled conditions, and the measures taken have greatly influenced the course of business during the current year.

Present indications are that during the first quarter of 1934 production of new-model cars will continue at a lively rate; construction will be increased through public works; there will be more available credit for private building and more purchasing power in the hands of rural and city populations. Increased buying of so-called luxury items at Christmas was generally regarded as encouraging, and trade reports from leading distribution centers were self-congratulatory in this respect. Today's figures justify the expectation that low stocks on hand will result in greater activity in the production of basic commodities as well as consumer goods for several months at least. Available statistics are of little value, however, as the basis of further conclusions. Public reaction to current innovations will naturally have an important bearing on business and existing evidence of a cheerful attitude—a looking upward to improved conditions—is a hopeful sign for 1934.

RAILROADS

By M. J. Gormley

President, American Railway Association

CURRENT TRENDS

During the first quarter of 1933 the trend of railway traffic and earnings in the United States followed generally the same downward course as that of the three preceding years, the volume of each week and each month being consistently below the corresponding periods of the preceding year. The cumulative effect of this extended period of decline was to reduce railroad operations during the first quarter of 1933 to a level more than 50 per cent below that of the corresponding quarter of the year 1929. A halt in the downward movement was recorded and an apparent bottom was reached in March of the current year, for during April there was a noticeable slackening in the rates of decline, and in the second week of May for the first time in 185 successive weeks revenue carloadings exceeded the figure for the corresponding week of the preceding year. Each succeeding week through October showed an increase over the same week of 1932, with the result that cumulative decreases of the first four months of the year were wiped out, and aggregate loadings for the first 10 months of 1933 exceeded loadings for the same 10 months of 1932 by 2.2 per cent. It is possible that this percentage of increase will be slightly higher by the end of the year, although there was some slackening after September in the weekly rates of increase. Railroad passenger traffic in 1933 was less than in 1932, but the rate of decline was probably smaller than in any of the last ten years.

EMERGENCY ACT OF 1933

To forward the general program of National Recovery, the special session of Congress (March-June, 1933) enacted a series of laws designed to relieve the banking situation, increase employment, to raise wage levels, to expand purchasing power, and to eliminate unfair competition in industry. A part of this program was the Emergency Railroad Transportation Act, 1933, approved June 16th. The Act established for a period of one year (which may be extended an additional year by executive order) the office of Federal Coordinator of Transportation. Joseph B. Eastman, a member of the Interstate Commerce Commission, was appointed to that office and is functioning in that capacity. The Act contemplates that carriers will voluntarily coöperate in working out operating and financial problems confronting the industry. The Coordinator has general supervision of this work and will also study transportation matters in general with a view to recommending legislation to Congress, dealing with a national transportation policy. The recapture clause of the Transportation Act, 1920, Section 15a, was repealed *ab initio*, and provision was made for return to the carriers of money paid by them into the railroad contingent fund established by that clause.

NATIONAL TRANSPORTATION COMMITTEE REPORT

The report of the National Transportation Committee, which was formed in the autumn of 1932 for the purpose of making a comprehensive and judicial study of the transportation problem as a whole, was published Feb. 13, 1933. The Committee, which was sponsored by a group of fiduciary institutions interested in the integrity of railway securities, was organized under the chairmanship of former President Calvin Coolidge, and included, in addition, B. M. Baruch, Alfred E. Smith, Alexander Legge, and Clark Howell. The findings of the committee outlined with critical comment the several features of the transportation problem of this country and made recommendations as to national policy. The following extracts from the Committee's report outline its general conclusions:

I. "The railroad system must be preserved. Changed conditions require new policies but not abandonment of railroad regulation . . . Government policies should be free of any purpose either to favor or to handicap any form of transportation with relation to any other form. We cannot solve the problem on the theory upon which horses are handicapped in a race. In a fair field and no favor competition should be permitted to decide the result . . .

1. "Parallel lines and systems are wasteful and unnecessary. Regional consolidations should be hastened and, where necessary, enforced, looking eventually to a single national system . . .

2. "Railroads should be permitted to own and operate competing services, including water lines, but regulatory jurisdiction should be extended to water rates and practices in coastal, inter-coastal and lake shipping to relieve commerce of present chaotic conditions . . .

3. "Government assumption of all or part of the costs of inefficient competing transport as a defense against monopoly is no longer warranted and should be abandoned. As a general principle inland waterways should bear all costs of amortization, interest, maintenance and operation of the facilities for their navigation. If they cannot bear such charges and compete with other forms of transport, they should be abandoned . . . Governmental commercial operation of the actual facilities of transportation, such as barge-lines, should not be continued . . .

4. "Automotive transportation should be put under such regulation as is necessary for public protection. It should bear its fair burden of tax but only on a basis of compensation for public expenditure on its behalf, plus its share of the general tax load. Neither tax nor regulation should be applied for any purpose of handicapping the march of progress for the benefit of the railroads.

5. "Beacons, weather service and similar auxiliaries to air traffic should be maintained at public expense, and air transport should be encouraged during its development stage but we believe that every such service should ultimately pay its own way.

II. "The railroads should do much that they have not done to improve their condition without any Government help at all. They should promptly be freed of all unnecessary restrictions on the doing of it . . .

III. "Regulatory jurisdiction should be extended to the whole national transportation system but applied only to the extent necessary for public protection. The existing regulatory mechanism of the Interstate Commerce Commission is inadequate and should be improved by reorganization without expansion or increased expense."

RATE STRUCTURE INVESTIGATION

The Interstate Commerce Commission, after consideration of a petition filed on behalf of certain shippers' organizations, instituted in March an investigation of railway rates and charges. Hearings were held in the matter and a decision was handed down July 31st, 1933. The Commission found that the present freight-rate level is not "depressing the volume of traffic or business of the country as a whole and that general rate reduction would not stimulate the aggregate volume of traffic by railroad." It also found that the "preservation of an adequate railroad transportation machine is more important to the country than lowered freight rates."

EMPLOYEES AND WAGES

The agreement between representatives of railway management and employees signed at Chicago Jan. 31, 1932, under which employees agreed to accept for a period of one year a deduction of 10 per cent from pay checks, has been extended to June 30, 1934.

RAILROAD CREDIT CORPORATION

The Interstate Commerce Commission authorized small freight rate surcharges on certain designated commodities, to be effective during the period Jan. 4, 1932, to March 31, 1933. Revenues derived from such increased rates were pooled and loaned to individual roads through the medium of the carriers' Railroad Credit Corporation created especially for that purpose. The Commission continued the rates to Sept. 30, 1933, but did not require the continuation of the pooling plan after March 31, 1933. During the fifteen months in which the pooling plan was in operation, approximately $75,500,000 was turned over to the Credit Corporation, the bulk of which was loaned to individual roads. The Corporation is now in process of liquidation. As loans are repaid, the proceeds are distributed among the carriers from which they were originally received.

RECONSTRUCTION FINANCE CORPORATION LOANS

Beginning operations on Feb. 2, 1932, the Reconstruction Finance Corporation through October, 1933, had made cash advances to borrowers aggregating nearly 3,250,000,000. Loans authorized to railroad companies aggregated $411,701,426, of which $386,955,309 had been actually disbursed and $3,083,532 had been canceled or withdrawn. Of the total amount disbursed to railroads, $53,715,264 had been repaid by October 31, 1933, leaving a net outstanding obligation on that date of $333,240,045.

TRANSPORTATION COMPETITION

Unregulated agencies of transportation, particularly the motor bus and the motor truck, continued in active competition with the railways throughout 1933. Federal regulation of such agencies has been a matter of investigation, study and discussion for a number of years but partial relief has come to the railways only through intrastate legislation in a few states. A form of regulation, not particularly intended to correct the inequality of opportunity now existing between regulated and unregulated agencies of transportation, is introduced in the NRA codes of fair competition within each industry. Such codes are principally intended to increase and to maintain employment and wages, with assurance of equal compliance therewith throughout an individual industry.

CONSOLIDATION

The so-called Prince plan for consolidation of railroads into seven systems was brought forward at the time emergency railroad legislation was under consideration. The plan proposed mergers on a regional basis, primarily involving competing lines rather than those which connect "end-to-end" and do not compete. The plan has since been revised and Coordinator Eastman has announced that his staff would study it, adding that "the claimed economies of such schemes are so great that they ought not be disregarded but deserve careful analysis."

RAILROAD FACILITIES

Mileage. — The average miles of road operated by Class I rail carriers in the United States (Class I roads are those whose annual gross incomes are $1,000,000 or more, excluding switching and terminal companies), were 242,176 in 1931, 241,521 in 1932, and 240,962 during the first nine months of 1933. Total track mileage of all railways was 429,823 in 1931 and 428,402 in 1932; track miles include second, third and fourth main tracks, yard tracks and sidings. Class I carriers of the country operate about 92 per cent of the total steam railway mileage and, due to the long-haul service which they perform, earn a somewhat larger proportion, or about 97 per cent, of total rail revenues.

Locomotives and Cars.—The number of locomotives in service on Class I railways reached a peak of 65,358 in 1924. From that year, ownership of locomotives steadily declined, numbering 55,149 in 1931 and 53,316 in 1932. Average tractive power increased during the period from 39,891 pounds per locomotive in 1924 to 45,764 pounds in 1931 and 46,299 pounds in 1932. The number of passenger cars in service on Class I railways also reached a peak in 1924, the number being 55,040. Ownership declined to 50,747 cars in 1931 and further to 49,353 cars in 1932. The relative decline between 1924 and 1932 was 10.4 per cent. Freight car ownership reached a peak in 1925, the number in service on Class I railways in that year being 2,357,234 cars. This number steadily declined thereafter, falling to 2,201,510 in 1931 and to 2,144,730 in 1932. The average capacity per car increased during the period, however, rising from 44.8 tons per car in 1925 to 47.0 tons per car in 1931 and 1932. On a relative basis, the number of freight cars declined by 9 per cent from 1925 to 1932; average capacity per car increased by 4.9 per cent during the same period.

RAILWAY FINANCES

Property Investment. — Total investment in road and equipment of Class I railways at the end of 1931 was $25,539,591,290. This decreased slightly in 1932 to $25,528,102,616. Material and supplies in 1931 amounted to $374,331,572, and $316,491,659 in 1932. Working capital (cash on hand) amounted to $328,-

933,358 in 1931 and $307,566,057 in 1932. The aggregate property investment, including road and equipment, material and supplies, and cash, amounted to $26,242,856,220 in 1931 and $26,152,160,332 in 1932.

Improvements.—Gross capital expenditures of Class I railways for additions and betterments to property, totaled $361,912,000 in 1931, and $167,194,000 in 1932. The aggregate expenditure of $167,194,000 during 1932 was distributed as follows: $36,371,000 was expended for locomotives, freight and passenger train cars, and other equipment; $130,823,000 was expended for improvements to roadway and structures.

EMPLOYMENT

The number of employees of Class I railways averaged 1,258,719 in 1931 and 1,031,703 in 1932. During the first nine month of 1933, the average number was 962,490, but the employment trend was gradually upward from March to September. Rail employees in September totaled 1,039,090, an increase of more than 110,000 men over the March total. Aggregate compensation to employees was $2,094,994,379 in 1931 and $1,512,816,147 in 1932. Average hourly compensation per employee was 68.9 cents in 1931 and 63.6 cents in 1932. Largely because of the 10 per cent deduction from pay checks agreed upon by management and employees on Feb. 1, 1932, average annual earnings per employee decreased from $1,664.39 in 1931 to $1,466.33 in 1932.

TRAFFIC AND REVENUES

Freight.—Total freight revenues received by Class I carriers amounted to $3,254,667,938 in 1931 and $2,450,829,130 in 1932. For the nine months ended Sept. 30, 1933, total freight revenues were $1,851,553,169 compared with $1,815,810,626 for the same period of 1932, an increase of 2 per cent in 1933. Average receipts per ton-mile in 1931 were 1.051 cents and in 1932 were 1.046 cents. Revenue ton-miles in 1931 aggregated 309,224,879,222 and in 1932 were 233,977,138,689. The average load per loaded car originated was 35.4 tons in 1931 and 34.9 tons in 1932; this average excludes less-than-carload (or LCL) merchandise. Rail carriers have continued to maintain throughout the period of reduced traffic the high level of transportation service which has characterized them in recent years. This high level of transportation service is due primarily to the large capital expenditures which the carriers have made since 1922.

Passenger.—Total passenger revenues of Class I railways were $551,047,483 in 1931 and $377,095,346 in 1932. Average receipts per passenger-mile were 2.513 cents in 1931 and 2.219 cents in 1932. The record shows an almost continuous decline in the number of revenue passengers carried by Class I railways since 1920; in that year the number of revenue passengers was 1,234,862,048. This declined to 596,390,924 in 1931 and 478,800,122 in 1932. Revenue passenger-miles totaled 46,848,667,987 in 1920, declined to 21,894,420,536 in 1931, and further declined to 16,971,034,205 in 1932. Passenger train-miles have been reduced from 567,705,310 miles in 1920 to 485,323,515 in 1931 and 420,410,978 in 1932, but the railroads have maintained their passenger service at a high degree of excellence. Speed has been maintained, and new comforts, such as air conditioning and improved seating facilities, have been added to attract the traveling public. In connection with coordinated bus services, some railways have discontinued the operation of certain passenger trains rendered unprofitable by competition of motor vehicles on improved highways.

REVENUES AND EXPENSES

Operating Revenues.—Total operating revenues of the Class I railways were $4,188,343,244 in 1931 and $3,126,760,154 in 1932. For the first nine months of 1933, total operating revenues were $2,298,099,370 for Class I railways, compared with $2,337,623,354 for the corresponding period of 1932. Thus operating revenues declined 1.7 per cent in the first three quarters of 1933.

Operating Expenses.—Total operating expenses of the Class I railways for 1931 were $3,223,574,616 and were reduced to $2,403,444,895 in 1932. For the nine months ended Sept. 30, 1933, total operating expenses for Class I railways were $1,665,718,464 compared with $1,831,750,280 for the corresponding period of 1932, a decrease of 9.1 per cent in 1933.

Net Operating Income.—Net railway operating income for Class I railways was $525,627,852 in 1931, and $326,298,008 in 1932. For the nine-month period ended Sept. 30, 1933, the net railway operating income was $340,973,877, compared with $197,832,444 for the corresponding period of 1932, an increase of 72.4 per cent in 1933.

Operating Ratio. — The operating ratio for Class I railways, that is, ratio of operating expenses to operating revenues, was 76.97 per cent in 1931 and 76.87 per cent in 1932. For the period of nine months ended Sept. 30, 1933, the operating ratio was 72.48 per cent, compared with 78.36 per cent for the corresponding period of 1932.

Taxes.—Railway tax accruals for Class I railways for 1931 were $303,528,099 and for 1932 amounted to $275,135,399. The decline in the total of tax payments was due primarily to the smaller amount of Federal and state income and revenue taxes, which in turn resulted from the decline in railway revenues and net income. Class I railways paid to state and local governments taxes to the amount of $293,100,089 in 1931 and $263,108,874 in 1932. For the first nine months of 1933, railway tax accruals aggregated $200,153,616, compared with $216,944,448 in the corresponding period of 1932. In relation to gross operating revenues, taxes consumed 5 cents out of every dollar taken in by the railroads in 1921, 7.2 cents in 1931, 8.8 cents in 1932, and 8.7 cents for the first nine months of 1933.

Return on Property Investment.—The rate of return on investment in road and equipment of Class I railways, including materials, supplies and cash on hand, averaged 2 per cent in 1931 and 1.25 per cent in 1932. For the nine-month period ended Sept. 30, 1933, the corresponding rate of return was 1.78 per cent. These rates of return are based on net operating income (gross revenue less operating expenses and taxes), before the payment of interest and other fixed charges.

RAILROAD PURCHASES

Taken as a whole, the railways of the United States represent probably the largest single purchaser of the products of the basic industries of the country. They use or consume annually about 25 per cent of the total bituminous coal production and, in addition, about 5 per cent of the total anthracite production in the United States. Their other requirements also include about 20 per cent of the total timber cut of the country and approximately 17 per cent of the total iron and steel production. The fuel bill of Class I railways in 1932 amounted to $178,250,000; their direct purchases of forest products equalled $52,200,000; expenditures for iron and steel products amounted to $100,550,000; the grand total in 1932 was $445,000,000. In normal times, railway purchases of materials and supplies exceed $1,250,000,000 annually.

RAILWAY MAINTENANCE

Expenditures made by Class I railways for maintenance of way and structures in 1931 were $530,612,890, and $351,179,041 in 1932. Expenditures of the same carriers for maintenance of equipment were $816,953,491 in 1931 and $618,940,773 in 1932. Further declines in both classes of expenditure occurred during the first nine months of 1933. The percentage of freight cars awaiting repair on Oct. 1, 1933, was 14.6 per cent of the total number, while the proportion of locomotives awaiting classified repairs at the same date was 21.5 per cent. Locomotives in storage on Oct. 1, 1933, numbered 5,522, compared with 10,174 on the same day of 1932. Idle or surplus freight cars on Oct. 14, 1933, numbered 376,818, compared with 557,121 on Oct. 14, 1932.

XIII. MANUFACTURES AND TRANSPORTATION

HIGHWAYS

By Thomas H. MacDonald

Chief, Bureau of Public Roads, Department of Agriculture

IMPROVEMENT OF STATE HIGHWAYS

Surfacing.—In 1932 the construction of state highways continued at a rate somewhat below that for other recent years but the decline was not nearly so marked as for construction industries in general. Nearly 30,000 miles of road were surfaced, bringing the surfaced roads of state systems to 266,000 miles. The state systems consist of 358,210 miles of road. The more important routes have been selected to make up the Federal-aid system and from this system, in turn, the United States highways have been selected. At the end of 1932 only 109,735 miles of the state systems had been improved with high-type surfaces such as bituminous macadam, bituminous concrete, Portland cement concrete and block types. Low-type surfaces such as waterbound macadam, gravel and sand-clay comprise 156,325 miles, and 92,150 miles were then unsurfaced.

The above figures show that 73 per cent of the state highways are now initially surfaced but we are far from having completed this percentage of the work necessary to be done in producing a complete and adequate system. There is a large portion of the 156,325 miles of low-type surfaces which, by reason of increased volume of traffic, now requires a higher type of surface. Many of the surfaces require widening to make them safe for two lines of traffic. Changes in the character and speed of highway traffic necessitate changes in location to remove dangerous curves and grades. In 1932, 6,210 miles of the surfacing placed involved a new surface of different type from the old surface on which it was placed and, in general, consisted of higher types to meet the needs of increased traffic.

Expansion in State Systems.—Increased traffic has not only necessitated a large amount of work in further improvement of highways built some years ago but it has also increased the importance of many local roads to the point where they must be taken into state systems. From 1927 to 1932 there was an increase of nearly 65,000 miles in the extent of our state systems. At the present time there is a general need for study and classification of our highways so that all routes of general interest will be placed in state systems and supported by state highway revenues.

Construction Employment. — The total employment on construction and maintenance of state highways was 229,000 men in January, 1932 and rose to a peak of 374,000 men in September, with a subsequent decline to 290,000 in December. It is estimated that for every man directly employed in highway construction at least two others are indirectly employed in supplying materials, transportation, etc. Continuation of state road work in 1931 without the marked decline shown in other industries was due in part to the self-supporting nature of these highways and in part to the accelerating effect of the Federal emergency highway appropriation of $120,000,000 on July 21, 1932.

State Highway Income.—The total state highway income during the year amounted to $898,318,000 composed of $632,200,000 from state revenue sources, $161,468,000 contributions from Federal and local sources and $104,650,000 from the sale of bonds and notes. Of the $632,200,000 derived from state sources, $49,977,000 was derived from direct property taxes and from appropriations and miscellaneous sources based principally on property taxation and $582,223,000, or 92 per cent, was derived from taxation of motor vehicles or gasoline and bridge tolls.

Expenditure. — The expenditure for state highway purposes during the year was $816,765,000. This expenditure was composed of $551,446,000 for construction and right of way, $169,479,000 for maintenance, $22,132,000 for equipment and machinery, $69,292,000 interest on bonds and notes and $4,416,000 for miscellaneous expenses.

FEDERAL-AID ROAD IMPROVEMENT

Mileage.—The Federal-aid system of highways consists of 206,000 miles of the more important routes of the state systems which have been selected for improvement with Federal aid. This system was designated as a result of the Federal Highway Act of 1921 and Federal authorizations for its improvement have been made for each fiscal year up to that ending June 30, 1933.

Construction. — The mileage of Federal-aid road construction during the fiscal year 1933 was less than the mileage constructed in the preceding year but greater than in any other year. The aggregate length of the projects completed was 13,255 miles, of which 8,503 miles were improved with Federal aid for the first time, 4,700 miles previously improved with Federal aid were further improved and 52 miles previously surfaced were reconstructed. The projects inaugurated during the year reduced to little more than $15,000,000 the unobligated balance of all Federal-aid appropriations thus far authorized. For the first time in seventeen years the fiscal year ended without definite provision by Congress for the continuance of Federal-aid road construction. In place of the usual authorization, provision was made in the National Industrial Recovery Act, approved June 16, 1933, for the construction of highways as a means of furnishing employment.

The Federal Government has participated in the improvement of 107,869 miles of the Federal-aid system. This improvement is composed of 47,328 miles of bituminous macadam and higher types, 48,221 miles of macadam, gravel and sand-clay, 11,777 miles of graded earth, and 543 miles of bridges and approaches. The system is now in large part surfaced but is by no means nearing completion. While construction has progressed rapidly in recent years, it has not kept pace with the demands of traffic. There is a large mileage of road where the traffic requires a higher type of surface, or widening, and there are numerous sections requiring relocation.

Emergency Appropriations. — The regular Federal-aid authorization of $125,000,000 for the fiscal year 1933 and the $120,000,000 made available for emergency construction work on the Federal-aid system by the Emergency Relief and Construction Act of July 21, 1932, were important factors in furnishing employment. During the fiscal year employment on Federal and Federal-aid road construction amounted to 1,308,000 man-months, an increase of 432,000 man-months over the preceding year and attributable to the emergency appropriation.

Employment.—During the winter of 1932-33 special attention was given to keeping road work going to relieve unemployment. More than twice as many men were kept at work as during the preceding winter and at the lowest level of employment, reached in January the number did not drop below 75,000 men.

PUBLIC WORKS HIGHWAY CONSTRUCTION

NRA Program.—In planning the National Recovery Program it was realized that effective results could be obtained only through the use of agencies capable of functioning on a country-wide scale. It was inevitable that the state and Federal highway organizations should be called upon to take a prominent place in the program since together they constituted the only national agency actually organized to execute public works on a scale adequate to sustain existing and to provide increased employment through properly planned and competently executed construction projects. The National Industrial Recovery Act, under section 204 authorized a grant of $400,000,000 to be apportioned to the various states and expended by their state highway departments in accordance with the provisions of the

Federal Highway Act as amended and supplemented by the Recovery Act. Section 205 of the Recovery Act appropriated $50,000,000 for highway construction in national forests, national parks, public lands and Indian lands to be expended under the same general plan as had previously been provided for improvement of roads in these areas.

Application of Funds.—The legislation included several new features affecting administration and scope of highway work with Federal funds. Such funds had previously been confined to the Federal-aid system or areas under Federal control. The new act provided that, in general, not more than 50 per cent of the funds should be spent on the Federal-aid highway system, not more than 25 per cent on secondary or feeder roads, and not less than 25 per cent on extension of the Federal-aid system into and through cities.

Procedure.—A number of changes in procedure with regard to examination and approval of projects were inaugurated in order to get projects under construction quickly. States were authorized to advertise work for letting to contract upon approval of plans by the district engineers of the Bureau of Public Roads without waiting for approval from Washington. States were permitted to begin work on secondary projects without previous preparation of plans where labor is employed directly by the state department and provided an engineer is assigned to properly direct the work. Contracts may be awarded for secondary projects, where the improvement follows an existing road closely, on the basis of abbreviated plans. For the benefit of several states which found it impossible or impracticable to pay the costs of work done pending reimbursement by the Federal Government, Federal funds have been advanced with proper safeguards and are being used as revolving funds.

Projects Under Way.—The National Recovery Act was signed on June 16, 1933, at a time when Federal-aid funds were nearing exhaustion. No advance notice had been given that the states would be called upon to place a large program under construction immediately. It was necessary not only to select projects for improvement, but also to make surveys and prepare plans before work could be advertised for letting. In the five-month period following the signing of the act over 4,000 projects have been advertised for contract or approved for construction with state forces, and these projects involve nearly half of the $400,000,000 fund authorized. In the same period over 3,000 of these projects have been placed under construction and are giving direct employment to nearly 100,000 men.

ROADSIDE IMPROVEMENT

Planning and Policy.—It is universally recognized that a very large percentage of the total use made of the highways is for recreational and social pursuits. Reasonable expenditures for providing pleasant and beautiful roadsides are wholly consistent with sound public policy, particularly now since this type of work can be used to advantage in providing employment that reaches rather different classes than normal highway operations. A prominent place has been given improvements of this kind in the public works highway program. It is expected that every state will improve a sufficient mileage to demonstrate the tangible benefits to be derived from roadside improvement, to indicate the most appropriate methods and to establish the basis for an organization in each highway department which can carry on such work continuously. In this connection, wider rights of way, particularly for major highways, are necessary. The acquiring of land is slow and expensive. Most of the states need better laws for this purpose. Adequate planning for the future is dependent upon adequate right of way. Property values are lower and property may be more easily obtained now than it can be again in this generation.

Sidewalks and Footpaths.—There is an urgent need for sidewalks and footpaths along a considerable mileage of highways, particularly in suburban areas. The need for such improvement is generally admitted, and this is a type of work particularly adapted to work-relief projects. Construction of sidewalks and footpaths is closely related to roadside improvement and frequently the two operations are carried on together.

Planning for Future Needs. — Proper planning of our highways requires that consideration be given the probable necessity for future widening, the present and future needs of pedestrian traffic, and present and future roadside development. These matters are particularly important adjacent to large cities. The development along many highways built 10 or 15 years on narrow rights of way has been such as to either prevent or greatly increase the cost of necessary widening and provision for pedestrians.

HIGHWAY TRAFFIC

Michigan Survey.—A report of the traffic survey conducted in Michigan by the Bureau of Public Roads in coöperation with the state highway department in 1930 and 1931 has been issued. Among the more important results of the survey was the determination of the relative utilization of the state highway system, the county and township highways, and city streets. The survey revealed that 50 per cent of all Michigan traffic is carried by the streets of cities in the state, 5 per cent by the township roads, 12 per cent by county roads and 33 per cent by the state highway system. On the 7,691 miles of main roads included in the state highway system the average daily traffic was found to be 1,144 vehicles. On the 17,175 miles classified at the time of the survey as county roads the traffic averaged 190 vehicles daily, and on the 60,214 miles of township roads, most extensive and least important of the state's road mileage, the traffic averaged only 22 vehicles per day. On 25 per cent of these roads the survey showed the traffic to be 10 vehicles or less daily. Of the traffic on city streets 69 per cent was found to be local to the city, and 31 per cent was found to originate at, or be destined to, points beyond the city limits. As an incident of the survey it was found that 2,500,000 motor tourists visited the state during the survey year with estimated total expenditures of $274,000,000. Over 80 per cent of these tourists were found to be from neighboring states and Canada.

FINANCE STUDIES

Results of extensive inquiry into the finances of Wisconsin, Illinois and Michigan with special reference to highways were made available in reports issued during the past year. All these studies related to the calendar year 1930 as the latest year for which complete data were available. The purpose of the investigations was to establish the relation of highway taxes paid from different sources and by different groups of citizens, based on local administrative units and the highway service furnished, and to lay down a broad basis for adjustment of highway taxes on a rational plan.

Many important facts regarding highway financing may be adduced from these surveys. In all three of the states covered, it was found that rural property paid no tax for urban streets, but a part of the tax on urban property was expended on local township roads. A striking similarity was found to exist between the proportion of motor-vehicle imposts paid by rural and urban motor-vehicle owners and the proportion of highway travel by these owners; for example, rural motor-vehicle owners (residents of townships) in Wisconsin paid 33.9 per cent of the total motor-vehicle imposts expended on all classes of roads and streets, and travel by these same rural owners made up 31.9 per cent of the total travel on all classes of roads and streets, while the corresponding percentages for city and village motor-vehicle owners were, respectively, 66.1 and 68.1 per cent.

XIII. MANUFACTURES AND TRANSPORTATION

THE MOTOR BUS INDUSTRY

By Carl W. Stocks

Editor, *Bus Transportation*

GENERAL

Despite adverse conditions that might well have proved insurmountable to an industry less affected with the public interest, bus transportation during 1933 not only retained firm grasp of the important position it holds in the transportation system of the nation but added in many ways to its services. Although financial results were not all that could be desired, the revival of business generally, through the medium of the NRA program and other economic factors, had a noticeable effect on transportation revenues. Data from 300 representative bus operations the country over, for the first nine months of 1933, indicates that intercity operations and revenues aggregated 6½ per cent above those for a similar period in 1932. Fare reductions on many cross-country routes during the fourth quarter, made necessary by railroad cut-rates, are likely to reduce total revenues for the year to somewhat smaller figures than for 1932. City bus net income for the year will slightly exceed 1932 records, judging from available reports. For the bus industry the past year developed unusually aggressive attempts to retard its growth through restrictive legislation and increased taxation. Failure of the various state legislatures to pass many of the drastic proposals submitted to them can definitely be ascribed to an aroused public, which is becoming more aware of the value of highway transportation services. In this connection it is interesting to note that more than 50,000 communities in the United States have no rail service at all, and, except for the private automobile, rely solely on buses and trucks for transportation.

SUBSTITUTION OF BUSES FOR CAR LINES

Expansion of bus services during 1933 was most noticeable in city and local operation, where new services and additions to existing lines far overshadowed discontinuances. In only one known instance, Key West, Fla., was the bus system of a city entirely discontinued. During the year seventeen cities substituted buses for all existing street car lines, the list including such prominent places as Springfield, Ohio, and Tulsa, Okla. San Antonio, Texas, with a population close to 250,000, is rapidly replacing its street car system with buses and soon will join the list of ''all bus'' cities, which now totals well over 300. Another trend, discernible in several sections of the country but particularly in California, is the turning over of local bus lines heretofore operated by municipal authorities to private, independent bus companies.

EARNINGS

As for earnings, exhaustive studies by the magazine *Bus Transportation* indicate that city companies experienced larger net operating revenues and net income during 1933, notwithstanding consistent increase in taxes, particularly on fuel and other operating supplies. These higher net incomes were due, in part, to increased riding attributable to increased employment under the NRA program and to a lesser extent to reduced payrolls of the carriers. The fourth quarter earnings were the best of the year.

VOLUME OF TRAFFIC

City.—In city service the volume of traffic handled during the year equalled, if it did not exceed, the volume handled during 1932. The large number of passengers handled in Chicago during the World's Fair was an important contributory factor. Comparisons of companies in service in 1932 and 1933 show that the traffic handled in 1933 closely approximates that handled in 1932.

The first quarter registered a decrease, but from April, when the turning point occurred, there was consistent increase both in traffic and in the number of bus-miles operated.

Intercity.—The intercity field, which includes the long haul bus lines, experienced its 1933 revenue peak during the third quarter, when many companies took in as much as they had during the preceding six months. The fourth quarter will compare favorably in volume of traffic handled with that of the preceding year, but due to fare reductions brought about by competitive rates total revenues for the year are expected to be slightly under revenues for 1932. The decrease may to some extent be offset by economies in operation and in the greater use of vehicles in regular service.

Long Haul.—One significant step taken by the long-haul bus lines during 1933 was the expansion of long distance express passenger lines. Such express operations now are quite extensive out of New York City. There is a 28½-hour service to Chicago, an 8-hour service to Boston and a 3½-hour service to Philadelphia

NRA CODES

Increase in Payroll Costs.—The outstanding development of the past year was the voluntary coöperation of the bus industry in the establishment of NRA Codes of Fair Competition. Two codes were formed which apply to the bus industry, one the Transit Code, which covers bus companies operating in city or local intrastate service in addition to street railway lines, the other, the Motor Bus Code, which governs long-haul bus companies. The full effect of NRA is still to be determined, but under the Motor Bus Code alone the long-haul operators have added $25,000,000 to payroll costs, and there has been an increase of 25 per cent in employment, according to a preliminary statement filed with the Administration, in December, by the Motor Bus Code Authority.

Rail Fare Competition.—To meet this increase in operating costs the bus industry will look somewhat to aggressive salesmanship, but must to a very large extent rely on improved business conditions. Increased fares, or an increase in the retail price of transportation, to use commodity terms, unfortunately, and many believe unfairly, are impossible because bus companies must compete with the drastic rate reductions put into effect Dec. 1, 1933 by practically all railroads, except those in Eastern territory. Rail rates as low as 1½ cents per mile have been established in some instances. The railroads, which have not been subjected to NRA code requirements and have experienced no increased cost of operation as the result of this law, are at this time in a particularly advantageous position to slash passenger rates, and apparently are determined to make good use of their opportunity. In most cases, however, the reductions are for an experimental period of six months, and the actual results of their efforts have yet to be determined. In the meantime bus operators have filed protests with the President, with the Interstate Commerce Commission and with the National Recovery Administration, complaining that the reduced railroad fares are non-compensatory and are forcing shippers of freight to subsidize passenger services through higher carload rates than really are necessary to support the service. To date there has been no alleviation of this condition.

"Travel Bureau" Control.—One distinct benefit brought about by NRA to both bus companies and to the public is the control over the so-called "travel bureaus" which peddle "share expense" transportation by automobile. When the well known public abuses inherent in this type of transportation became apparent several years ago a few states enacted legislation to curb commercialized "share expense" transportation. NRA restrictions will effect still greater results, and on a national scale. Curb also is being put on unscrupulous ticket brokers who by various methods in the sale of bus tickets have been able to fleece the public.

LEGISLATIVE DEVELOPMENTS

At the beginning of 1933 bus companies found themselves faced with an unusually stiff battle against proposed state legislation of an excessively restrictive character, especially the threat of further additions to their tax burden, which most bus men now believe to be too heavy. Attempts to secure enactment of legislation which would have reduced limits of weight, length, width, height and speed of buses and to increase taxes on buses very largely failed. Few of these proposals could be proved as really needed in the interest of the public, and public sentiment aided greatly in their defeat. Among recent legislative developments, a bill was introduced in Congress by Samuel Rayburn, chairman of the House Committee on Interstate and Foreign Commerce, during the early days of the 1934 session, designed to regulate bus and truck transportation. The intent of this bill is to place buses and trucks under jurisdiction of the Interstate Commerce Commission. It is similar to other bills considered in the past for the national regulation of interstate buses and trucks.

BUS SAFETY RECORD

During 1933 the bus continued to merit the title of ''the safest vehicle on the highway,'' and was even able to show improvement of its accident record. Statistics compiled by the National Safety Council show that for the year ended April, 1933, intercity bus companies reporting to the Council had a better safety record than any other type of commercial highway vehicle. The number of buses involved in fatal accidents decreased 20 per cent during the period 1927-1932, while, during the same period, private passenger cars and motorcycles showed increases of 38 and 21 per cent respectively.

MERGERS

Several important mergers or consolidations took place in 1933. The most important being the amalgamation of Western Greyhound, Southland Greyhound and Southwestern Transportation Company to form a new organization known as Southwestern Greyhound Lines, Inc. The results achieved were greatly reduced overhead costs, and the establishment of one of the largest bus systems in the country, with services extending from the Mississippi River to Alburquerque, New Mexico, and to El Paso in the West. Operations are centered principally in Kansas, Colorado, Texas, Missouri, Arkansas and Oklahoma.

NEW COMPANIES AND ROUTES

Since only those interstate bus companies which were in operation on Oct. 31 were eligible to continue under the Motor Bus Code, without intrastate certificates, many extensions of existing facilities and certain new routes were hurriedly established. It is estimated that from 25 to 50 new companies were formed under this pressure and that a total of approximately 25,000 miles of new routes were added. Two new transcontinental lines were worked out during the year. One uses the established lines of Santa Fe Trail Coaches, Southern Kansas Stage Lines, Indian Trails, and the Frank Martz Coach Company. The second, known as the Northern Short Route, was effected by the organization of the Spokane-Butte Motor Coach Company, to extend operations of the Washington Motor Coach System eastward to Butte, to connect with Northland Greyhound Lines for Minneapolis and other eastern points.

OPERATING COSTS

Under the lash of necessity bus executives sought and obtained still lower operating costs in 1933 than in 1932, although the savings thus made were largely, if not completely, absorbed by taxes imposed on vehicles and parts, and enlarged gasoline levies. To the cause of lowered maintenance costs manufacturers contributed much during the past year. Recent designs indicate manufacturers more and more are recognizing that the success and popularity of their product may rest as much on the accessibility of its various units for maintenance purposes as on the quality and workmanship of the materials and parts entering its construction. Bus maintenance men, however, believe ardently that there still is room for improvement in bus design.

STATISTICAL

The latest available statistics indicate there are now approximately 45,000 common carrier buses in operation, of which about 17,000 are used in city service and some 2,000 in sightseeing service. The balance are in intercity and long-haul service. In addition there are about 60,000 buses used for the transportation of school children. Investment in rolling stock now is close to $350,000,000 and there is another $120,000,000 invested in terminals and garages. Taxes paid by common carrier bus companies aggregated between $35,000,000 and $40,000,000 last year, or about 10 per cent of the invested capital. There are now about 425,000 miles of common carrier bus routes, of which some 380,000 miles are in intercity and long-haul service, 15,000 miles in city service and the balance in sightseeing and other irregular services. The industry employs approximately 110,000 people.

COMMUNITY TRANSIT

By John A. Miller

Editor, *Transit Journal*

GENERAL

Increased patronage due to greater general business and industrial activity throughout the country enabled the transit industry in 1933 to check the downward traffic trend of the preceding several years and commence an upward climb. Earnings for the first quarter ran about 17 per cent below the same period of the preceding year. For the second quarter the loss was cut to about 11 per cent. After the middle of the summer the trend improved steadily with many companies running substantially above the year before. As a result the business of industry for the year as a whole was nearly equal to that done in 1932. In view of the unfavorable conditions during the early months this showing is distinctly encouraging.

TRANSIT CODE

Work-Hour Adjustment.—Outstanding among the events of the year was the signing of the Code of Fair Competition for the Transit Industry by President Roosevelt on Sept. 18. Since transit wages have always been relatively high, no difficulty was experienced by the industry in establishing minimum wage provisions in accord with the policy of the National Recovery Administration. Hours of labor, however, presented a more difficult problem. On account of the nature of the transit business the hours of trainmen have generally been somewhat longer than those of workers in manufacturing industries. Conferences between representatives of the American Transit Association, the Amalgamated Association of Street and Electric Railway Employees of America and the N. R. A. resulted in the adoption of a schedule of 48 hours per week for trainmen, bus operators, ticket agents, etc., with a special added allowance not to exceed six hours per week for any employee averaged over a six months period. Not more than 10 per cent of such employees are to be allowed to reach this maximum. Hours for other classes of employees are fixed at limits ranging downward from 48 to 40 hours per week. Where transit operating companies have written agreements with their employees respecting wages and hours of work, however, they must be adhered to unless changed by mutual agreement.

Costs and Fares.—Undoubtedly the efforts of the transit industry to carry out the purpose of the National Industrial Recovery Act will increase operating costs. Since transit fares are specified in franchises or controlled by regulatory authorities, and even if granted, higher fares probably would fail to produce increased revenue, the industry generally is unable to pass on to the consumer the added cost of doing business under the N. R. A. Its principal hope of compensation for the added burdens imposed by the code lies in relief from destructive competition. The code declares it to be unfair competition for any type of transportation service carrying passengers for hire in areas served by the companies subscribing to the code to pay substantially lower wages or permit substantially longer working hours than those established for the transit industry.

Automobile Competition.—Automobiles operating for hire as taxicabs, as ''service cars'' or on a ''share-expense'' basis with little or no control by public regulatory bodies have been exacting a heavy toll from the organized transit companies. If these vehicles are brought under control and their operation subjected to regulation of hours and wages similar to those of the transit industry, a long step will have been taken in the direction of economic stabilization of local transportation.

OPERATION MILEAGE

At the beginning of 1933 the transit industry in the United States was operating approximately 64,000 rail cars on some 38,000 miles of electrified track, and approximately 17,000 buses on 27,000 miles of route. The table (p. 541) shows the distribution.

MOTOR AND TROLLEY BUS SERVICE

San Antonio and Jacksonville.—Substitution of motor bus service and trolley bus service in place of rail service continued during 1933 as in previous years. Of particular interest was the complete substitution in San Antonio, Tex., a city of nearly 250,000 people, which thereby became the largest city in the world to be served entirely by motor buses. A similar complete substitution was made in Jacksonville, Fla., a city of about 130,000 population. Numerous smaller communities also made complete changes in the type of vehicles used for local transportation service.

New York.—Permission to substitute buses in place of electric cars was granted to the New York Railways after several years of argument with the city. Some details remain to be settled, but it appears probable that the long discussed change will actually be made in the near future. While the earnings of this railway have always been remarkably good, the operating expenses have been very high due to the age of the equipment and the costly underground current collection system. The substitution of buses in place of cars should result in a substantial reduction in operating costs in this service. On account of the extent of the rapid transit facilities in New York, however, surface transportation facilities serve a somewhat restricted field and care should be exercised in applying elsewhere any conclusions based on New York experience.

Dayton, Columbus and Indianapolis.—Several notable substitutions of trolley bus service in place of electric railway service also occurred during the year. A complete change-over was made by the Dayton Street Railway, Dayton, Ohio, with a resultant increase in patronage. Other companies in Dayton continue to operate rail service, however, so the city cannot be classed as being served by trolley buses alone. In Columbus, Ohio, a partial substitution was made. At Indianapolis one line was converted to trolley buses and announcement was made that they will be adopted for a considerable part of the system.

Results and Trends.—The results of all these changes was a moderate reduction in the track mileage of the industry as a whole and an increase in the mileage of bus and trolley bus routes. In view of the improvements that have been made in recent years in the design of rail-less vehicles, this trend is easily understandable and may be expected to continue in the

TRACKS AND BUS ROUTE OF TRANSIT LINES

(as of January 1, 1933)

Territory Served	—Miles of Electrically Operated Track—			—Miles of Route—		
	Surface Line	Rapid Transit	Suburban R. R.	Trolley Bus	Motor Bus	Total Miles
Cities over 500,000 population	7,292	1,181	2,758	82	3,379	14,692
Cities of 100,000–500,000 population	8,943	——	——	87	8,434	17,464
Cities of 25,000–100,000 population	4,106	——	——	82	4,359	8,547
Total U. S. cities over 25,000	20,341	1,181	2,758	251	16,172	40,703
Communities under 25,000 population	885	——	——	—	1,159	2,044
Interurban area in U. S.	10,515	——	——	—	9,273*	19,788
Total in U. S.	31,741	1,181	2,758	251	26,604	62,535

* Does not include long distance inter-city service.

TRANSIT EQUIPMENT

(as of January 1, 1933)

Territory Served	—Passenger Cars—			—Road Vehicles—		
	Surface Cars	Rapid Transit	Suburban R. R.	Trolley Buses	Motor Buses	Total Cars and Buses
Cities over 500,000 population	22,780	10,412	3,213	142	4,817	41,364
Cities of 100,000–500,000 population	17,216	——	——	83	6,638	23,937
Cities of 25,000–100,000 population	5,318	——	——	48	2,963	8,329
Total U. S. cities over 25,000	45,314	10,412	3,213	273	14,418	73,630
Communities under 25,000	960	——	——	—	661	1,621
Interurban areas in U. S.	4,686	——	——	—	1,614*	6,300
Total in U. S.	50,960	10,412	3,213	273	16,693	81,551

* Does not include long distance inter-city service.

future. Especially does the small capacity bus operated on short headways appear to offer attractive possibilities.

MODERNIZATION

Modernization of transit facilities was not confined to the substitution of rail-less vehicles in place of electric cars, however. Notable progress was made also in the improvement of rail equipment. Increased revenue resulting from the operation of 25 new electric rail cars, ordered late in 1932 prompted the Indianapolis Railways to place an order for 50 additional rail cars in the fall of 1933. At the same time the company ordered 80 new trolley buses for lines where that type of vehicle is believed to be better suited to the service requirements. When this new equipment is placed in service the company's rolling stock will have been completely modernized with vehicles specially selected to meet the needs of each individual route. This development was one of the most significant that occurred during the year. The need for modernization of equipment has long been recognized in the transit industry. Difficult economic conditions, however, have generally caused postponement of definite action to meet this admitted need. But Indianapolis decided to go ahead despite these difficulties. New equipment having proved its ability to attract more riders in that city, the company believed that the solution of its problem lay in the operation of more new equipment to attract still more riders. Two new street cars of a radically different type from any previously designed were ordered by the Chicago Surface Lines. They were built by two separate car builders, who were given the widest possible latitude in design. Only a few general specifications were laid down by the railway. For the rest the car builders followed their own ideas with the aim of producing a lighter, faster, quieter and more attractive vehicle. Numerous features developed through the research work of the Electric Railway Presidents' Conference Committee are included in the design of both cars. Thus their operation will furnish a practical service test for the ideas that have been undergoing laboratory tests for the past year or more.

RAPID TRANSIT

Most interesting of all the year's developments in the field of rapid transit was the five-section car designed for use on the Brooklyn-Manhattan Transit Corporation's lines. Built of aluminum, it is even lighter than the old wooden elevated cars. With motors and control of a radically new type the schedule speeds that can be maintained in local service will equal those of existing express trains. It is designed to be quiet inside and out, thus removing the greatest objection voiced against elevated railroads. Experiments made by the Interborough Rapid Transit Company demonstrated that by the installation of relatively simple and inexpensive changes in apparatus the din and clatter of the subway can be kept out of its cars, adding greatly to the comfort of travel. It is planned to proceed as rapidly as possible with the installation of this equipment on all of the company's cars. Progressive moves such as these represent a great forward step and should do much to increase the popularity of rapid transit service.

RESEARCH IN CAR DESIGN

General.—Performance characteristics greatly superior to those of the conventional street car have been shown in tests of equipment developed by the engineers of the Electric Railway Presidents' Conference Committee. While the units of equipment that have been produced up to the present time are laboratory models for testing rather than commercial products for general use, the results obtained with them hold promise that designs will be available in the not distant future for the actual building of cars on a production basis.

Wheels and Trucks.—Particularly significant is the progress made in the development of wheels and trucks. Designs have been produced wherein all forces, driving and rolling, are cushioned on rubber. These promise a notable reduction of noise and impact stresses on equipment and track while having adequate carrying capacity for heavy loads.

Brakes.—Substantial improvements have been effected also in the power plant and its control. Means have been found to accomplish much smoother starting with high rates of acceleration. Braking apparatus weighing far less than the present conventional type has been developed. It is so designed that smooth and effective braking can be obtained without the uncomfortable jerk at the end which passengers dislike and which also has marked effect on car maintenance.

Body Design.—While the car body had been considered the simplest part of the problem from the technical standpoint, its importance from the standpoint of passenger appeal has been fully recognized. The objective has been to effect a happy compromise between first cost and luxurious appearance. The improvements in starting, braking and riding quality, together with attractive exterior appearance, are expected to have strong customer appeal.

FINANCIAL

Equipment Needs.—Need for modernization of plant and equipment has long been recognized in the transit industry. Probably no other of the great industries of the country is operating with so large a proportion of obsolete equipment. Comparison of the average capital expenditures of the past four years with those of the six years prior to the depression shows deferred requirements totalling about $175,000,000. Normal needs in 1934 would presumably be about the same as those of an average pre-depression year, or approximately $140,000,000. Thus the capital expenditures which the transit industry should make in the next 12 months to bring it back to pre-depression standards total considerably over $300,000,000.

Rolling Stock and Trackage.—The greatest need for transit modernization lies in the field of rail rolling stock. Of the 60,000 active passenger cars in the industry 85 per cent are now more than 10 years old and nearly 50 per cent are more than 20 years old. Rehabilitation of track is also an urgent need on many properties. Since the beginning of the depression the electric railways have built or rebuilt only about 600 miles of track per year as compared with an average of over 1000 miles for the last six pre-depression years. Opportunity for modernization exists also with respect to the motor bus and the trolley bus. It is well known that more than half of the 16,000 buses operated by the transit industry are now approaching the end of their useful life.

Legislation.—Under legislation passed at the extra session of Congress funds at the disposal of the national Public Works Administration are available for transit modernization. An effective method of securing money for modernization is thus presented to the industry at a most opportune time.

THE MERCHANT MARINE

By Peter Bain

Consulting Naval Architect

RESTRICTION OF MERCHANT SHIPPING

The United States in 1933 shared the experience of other maritime countries of the world in restriction of its merchant shipping activities. It may be noted, too, that as the year closed the outlook gave no promise other than more or less indefinite continuance of the prevailing inertness. Degree of merchant marine activity being for the most part predicated upon, and barometric of, international trade and commerce, naturally an equally unsatisfactory condition of the latter was reflected. Financial distress compounded with a widespread trend towards national self-sufficiency may well be accepted as supplying the one sufficient reason for the steep declines recorded in both shipping and trade. By and large, merchant ships were operated at a loss during the twelve months' period, in which connection it is claimed that only Government loans and mail subsidies brought the American merchant marine in foreign trade safely through the year. Not a single major trade route had to be abandoned, this in face of lower rates and reduced traffic both passenger and freight. According to R. J. Baker, secretary of the American Steamship Owners Association, the American merchant marine is beginning to look like a permanent institution, as well it may, having regard to its 1933 record. As distinct from the world outlook noted earlier, that pertaining to the American merchant marine appears to be rather more hopeful of speedy improvement.

FACTORS IN HOPEFUL OUTLOOK

Contributing to and presaging such a desirable eventuality there may be listed a slight gain in foreign trade especially in exports; a marked improvement in coastwise and intercoastal traffic; resumption of diplomatic relations with Russia and an impending formulation of trade agreements with the various Latin-American republics. No less important, tanker cargoes are understood to be definitely on the upgrade. With regard to export gains in foreign trade, part at least may well be credited to our depreciated currency. The latter is not without its effect on purchase of vessel supplies abroad, only it operates in a contrary direction to that of exports. Little progress appears to have been made towards greater use of American vessels by both shippers and travellers. A goodly portion of the freight carried on the North Atlantic is of United States origin as is 70 per cent of the passengers, yet only about one-third of the former and 10 per cent of the latter are to be found on American ships. What is true of the North Atlantic applies equally to Gulf and Pacific Coast services although, perhaps, to a lesser degree. During the fiscal year ended June 30th, 3,569 vessels of the world's fleets participated in our water-borne commerce, making nearly 41,000 entrances and clearances at 161 United States ports, carrying over 55,000,000 tons of cargo and 1,400,000 passengers. Related foreign ports of origin and destination numbered 1,232. Aside from the inactivity in international trade and commerce and abolition of the United States Shipping Board, a purely domestic matter, all else appeared commonplace save for the free-for-all attacks, for the most part from abroad, on American merchant marine policies and practices.

IDLE AND SURPLUS TONNAGE

From the blighting effects of a world financially distressed and turned nationalistic, a huge burden of idle shipping has emerged and, with it, the old problem of an over-age surplus is again postulated. Of the seagoing section of the American merchant marine some 600 vessels out of a grand total of 1,700 were laid up. During the closing weeks of the year a number were withdrawn from lay-up preparatory to re-entry into service; except, however, for its being an indication of a slight improvement in some particular direction it had no bearing of consequence. A notable lay-up of the year was the United States Lines flagship *Leviathan* because outmoded. Among other notable vessels on our lay-up roster are the *Republic, George Washington, Monticello* and *Mount Vernon.* At the end of the fiscal year the merchant marine of the United States comprised 24,868 vessels aggregating 15,060,157 gross tons of which the lay-up and out-of-commission totals were 2,662 vessels aggregating 4,146,538 gross tons. These figures refer to vessels of five or more gross tons. Idle and out-of-commission shipping throughout the world was relatively high, being estimated at 12,000,000 tons. During the fifteen months ended Sept. 30th, at least 2,900,000 tons of world merchant shipping were scrapped or disposed of with that end in view. This, added to an estimate of 400,000 tons lost through casualties and stress of weather, made a total reduction of 3,300,000 tons in the aggregate holdings of all maritime nations, which as the year closed stood at about 66,600,000 tons. Expectations are that, by June 30, 1934, available merchant tonnage will have shrunk to the 1927 level of approximately 65,000,000 tons as compared with more than 70,000,000 tons in 1931. According to Lloyds, 18,500,000 of the 66,600,000 tons is more than twenty years old. World tonnage in the nineteen-year period 1914-1933 registered an increase of no less than 21,200,000 tons, of which approximately 8,000,000 tons can justifiably be credited to our recreated merchant marine.

WORLD TONNAGE

It is generally and frankly admitted that world tonnage is overwhelmingly adequate for the transportation of a normal or other expectant increase of international trade and commerce; this in spite of the circumstance that the major portion of each nation's contribution to foreign trade must be water-borne, in our own case to the extent of about 85 per cent. Concerning much of the shipping now idle and out of commission, no less universely frank comment concedes that its operating days are numbered, scrapping being but a question of time and the exercise of good judgment. In view of these conclusions, during 1933 and particularly abroad, prolonged concentration and widespread discussion centered around ways and means — national and international—whereby some reformation might be consummated. So far as the United States is concerned it has no scrapping program notwithstanding, it has laid up since the World War more tonnage than any competitor nation. It has led, too, in vessel scrapping and today realizes as fully as any that much of its idle and laid-up tonnage has little more than scrap value because no market exists and none is likely to before the vessels comprised are completely outmoded. In the ten-year period ended Jan. 1, 1932, the United States scrapped 2,559,526 tons of merchant shipping equal to 24.9 per cent of its entire fleet; Great Britain 2,045,559 tons or 10.5 per cent; Italy 855,127 tons or 25.7 per cent; Germany 146,746 tons or 3.5 per cent; France 772,613 tons or 22.1 per cent, and Japan 215,174 tons or 5.1 per cent.

Leaders in the shipping industries of foreign countries appear to favor international agreements framed by the respective Governments as the only effective means of reducing the excess tonnage still operating in world markets which in 1933 were only half as active as they were four years previously. Claim is made that in practically every country merchant shipping is either owned or controlled to such a degree by the Government that statesmen of the latter and leaders in shipping if brought together in conference might readily determine a volume of tonnage to be operated by individual nations. Any such conference could not afford to overlook new ship construction in its program findings or recommendations and, just there, not improbably, would the greatest difficulty be encountered in securing unanimity of action and degree of finality. So far, the United States shipping community has looked askance at the different solutions suggested and propounded, maintaining the right to be master of and dictate the destiny of its own merchant marine, and just a little suspicious of anything that looks like or might develop a thrust crippling enough to endanger continuance of current constructional and operative support. In a word, the physical and permanency values of our merchant marine are seen to be at stake. In 1932 the British Chamber of Shipping brought to the attention of the American Steamship Owners Association a plan for ''rationalization'' of tonnage through the laying up of excess vessels but no agreement resulted, the British Chamber of Shipping being credited with refusal to promise to lay up enough tonnage to warrant our coöperation.

OPPOSITION TO SUBSIDIZED SHIPPING

Back of all plans, schemes, proposals, and projects, for the scrapping of laid-up tonnage and for reduction of its prevailing service excess, there lies a campaign of invective and threat against subsidized shipping generally and that of the United States particularly. The British view was set forth in a report of the national committee of the International Chamber of Commerce which met during the year in Vienna. Embodied in the report was this statement: ''So long as shipbuilding and shipowning under all flags are left to labor under conditions that make their economic continuance an impossibility, the future of international sea transport is in peril. These conditions are in the main the creation of direct and indirect subsidies granted to national shipping and to premiums granted to national shipbuilding to enable national ships to be built and run on an uneconomical basis. There can be no return to sound conditions in the shipping industry, and the future of international sea transport can never be assured so long as the uneconomical policies of government subsidies continue.'' The Baltic and International Conference, representative of British, Danish, German, Netherlands, Norwegian, and Swedish owners, expressed like hostility towards the American merchant marine in a resolution laid before the Chamber of Shipping of the United Kingdom. The only inference to be drawn is that rehabilitation of our merchant shipping created and continues to sustain the surplus tonnage imbroglio.

In addition to being attacked from abroad, not a little antagonism also developed to an extent uncomfortably menacing in our own ''yard'' so to say. An outcome of the latter was the appointment of a special Congressional Committee to study and investigate all ocean and air mail contracts in the light of payments involved, structure of companies participating, measure of services rendered, etc. Although a goodly part of the year was devoted to the assembly of data, no report was expected much before mid-year 1934. Incidental to the foregoing, towards the latter part of July all ship lines holding mail contract were notified that the Post Office Department would be obliged to seek means of reducing its operating cost in order to come into line with a 1 per cent general cut called for by the Department of the Budget. No further development of this phase of ocean mail subsidies materialized however, during the balance of the year. The general attitude of the Administration and of Congress is believed to be sufficiently favorable toward the merchant marine to insure continuance on the existing basis of all mail contracts and other forms of commercial shipping aid. What appears to have been a most timely contribution to the whole subsidy question and to its ocean mail side particularly was the statement by Roger D. Lapham, president of the American Hawaiian Steamship Co., that the public had received a false impression of the profits made by vessel lines holding mail contracts through evidence submitted during sessions of the special Congressional Committee. He believed that it would be unwise to abandon the ocean mail subsidies or in any case the most important of them. The misnomer ''mail pay'' might well be discarded he thought, and be replaced by such term as ''contract service pay''; thus payment would be for a stated service of which the carrying of mail was only a part, trade prestige and military value being considered important enough to warrant at least indirect inclusion in any proposed revision of our shipping subsidy alibi.

Public opinion in this country is committed to the tenet that its merchant marine should be built, owned and operated according to American standards and without dependence on the will of foreign competitors. As a corollary, whose else business is it? Towards the year end an angry attack on our shipping policy was launched by Alexander Shaw, chairman of the gigantic Peninsular and Oriental Steam Navigation Co. at the annual meeting of shareholders. Mr. Shaw complained bitterly of the inroads that subsidized American shipping was making on a "purely British" trade route. He demanded retaliatory action by the Empire governments, especially in Australia-New Zealand trade where he charged that American ships were driving British lines almost out of business. Again, but without mention of name, he complained that the same American Company had invaded British trade between Hong Kong, Singapore, Penang, Colombo, and Bombay, all British possessions. Being powerless either for negotiation, or defense otherwise, he looked to retaliation as the remedy. Retaliation, that word of sinister meaning, usually strikes back as effectively as it strikes out and oftimes just a trifle harder, yet Mr. Shaw either overlooked such a contingency in his temper, or the experiences of a lifetime had failed to inform him. Two days or so before Mr. Shaw's outburst, Walter Runciman, president of Britain's Board of Trade, stated categorically that Britons would use none other than British ships.

To Franklin D. Mooney, president of the Atlantic, Gulf and West Indies Steamship Co., and chairman of the committee on foreign competition of the American Steamship Owners Association, fell the job of explaining to Mr. Shaw and Mr. Runciman what implications were involved in any organized attempt to discriminate against American shipping. Prefacing his exposé of a policy of retaliation with the statement that British ships carry one-third of United States business, as much as its own vessels carry. Mr. Mooney pointed out that any move to reserve the commerce of ocean transport to its country of origin would be to the detriment of Great Britain and the overwhelming advantage of this country. We originate more commerce than any other nation, hence, reserving that trade to American flag ships would create for us the mightiest merchant fleet on the seven seas. On the purely passenger or travel side we would be even more fortunate for withdrawal of American patronage would ruin every foreign ship line now serving our ports. Naturally such an eventuality is unthinkable, yet how easily it could come about through public preference should international conditions convince the American nation of the wisdom of such a course. We give two-thirds of our freight and about three-fourths of our passengers to foreign ships. Any greater percentage would amount to the complete elimination of American ship lines in international trade.

UNITED STATES SHIPPING BOARD

The United States Shipping Board as a separate and independent entity of the Federal Government ceased as such on August 10 and became simply an ancillary bureau in the transportation section of the Department of Commerce, to which has been added an advisory committee on merchant shipping consisting of Hutch I. Cone as chairman, General Charles McK. Saltzman, and Thomas M. Woodward. Included in the transfer was the Merchant Fleet Corporation, operating branch of the Board's general administrative obligations. A few misgivings were expressed as to the wisdom of the move, the substance of them centering on fear lest maritime affairs might receive but perfunctory attention mid the maze and mass of other transportation business coming within Department of Commerce purview. There is, however, every reason to believe that our merchant marine policies and progress will benefit to a marked degree under the new dispensation. Again, from what will be the final annual report of the Shipping Board as originally established and constituted, abundant evidence is presented to indicate that the need no longer exists for a separate and independent department to care for what little remains of a one-time huge and onerous undertaking.

With a steadily dwindling fleet to dispose of and operate pending that consummation, Shipping Board activities became for the most part administrative and regulatory. That this aptly describes its status during 1933 is readily apparent from the circumstance that Congress made no appropriation for active ship operation on Board account for that year, expenses incurred being predicated on utilization of its own accumulated reserves. At the end of the fiscal year only five services were being operated. Vessels controlled by the Board through its Merchant Fleet Corporation consisted of 55 cargo carriers and 5 tugs in active service; 232 cargo carriers, 4 passenger ships, 9 refrigerator ships, 1 transport, and 1 tug inactive or laid up; altogether 307 vessels of approximately 2,598,261 deadweight tons. Operating loss of the Merchant Fleet Corporation was approximately $5,387,000. Subject to the Board's regulatory jurisdiction are 170 interstate carriers and 246 carriers in foreign commerce of the United States.

Sales of 184 vessels were authorized during the fiscal year. Included were 52 cargo carriers sold for restricted operations on trade routes; 5 cargo carriers sold subject to specific requirements for repairs and reconditioning and with limitations as to operating in protected trades; 125 cargo carriers sold for dismantling and scrapping; 1 wood harbor tug, and 1 launch. Nine cargo carriers on which the Shipping Board held mortgages, the owners being in default, were purchased at court sales. Six vessels were returned to the Board through settlements effected with former purchasers of trade routes. In Shipping Board services but assigned to managing operators were 38 cargo carriers. Cost of maintaining cargo services amounted to $4,805,000. Charter hire net earnings totalled $18,000 and miscellaneous income about $370,000. Advances from the construction loan fund totalled $24,549,738.63. Since inception and up to June 30 inclusive, loans authorized amount to $147,752,146.66 of which $147,123,224.57 had been advanced. The loans relate to 33 steamship companies for the construction of 57 new vessels and for the conversion and/or reconditioning of 40 already built. Of the original fund of $25,000,000 authorized for a dieselization program, $23,665,000 became available and $23,384,866.60 has been spent. Requirements for new construction based on 45 ocean mail co tracts now in effect call for at lea 54 ships with conditional requiremen making possible the construction c 12 more. Latest figures show r quirements of 61 reconstructed vesse constituting thereby a program em bracing 127 ships at an expenditu on the part of ocean mail contra holders of about $300,000,000. Tot coverage of the marine insurance fun amounted to $54,003,775 of whic $30,389,875 applied to 106 privatel owned American flag vessels an $23,613,900 represented insurance o 61 vessels operated in Shipping Boar services.

NRA CODE FOR THE SHIPPING INDUSTRY

Of a general code covering th shipping industry it can be said tha agreement among the many interest to be embraced was being steadily i slowly achieved. Agreement of intercoastal lines to contract terms, wage of longshoremen at Atlantic and Gul ports, stabilization of the industry and demands of foreign flag lines were chief among the details awaiting satisfactory disposition. Preliminary to drafting a tentative code, a comprehensive survey of the industry was made by several committees of ship and other operators. Of the survey scope and its general value it can be said that nothing appears to have been overlooked in the endeavor to bring into line the components of an industry more diverse than most and equally vital as any on the NRA horizon. The shipping industry besides having to do with conditions both ashore and afloat has its international as well as national aspect and, as may be inferred, all sections have been seeking and contriving to stamp their impress as indelibly as possible on any code that ultimately may emerge. According to the survey, American shipping has little prospect of added business to lighten any NRA load, water transportation rates being much less flexible than commodity prices, and the volume of business dependent on factors beyond shipowner control. By raising domestic prices the recovery program will undoubtedly operate to the vessel owner's disadvantage in foreign trade by reducing the interchange of commodities and, in the domestic field, it may well be that the reaping of any benefits through increased production must await development of adjacent markets before these can be expected to reflect favorably on those nonadjacent. The code is destined to apply to all owners, operators, and agents of all vessels of all flags engaged in foreign commerce and all American vessels of more than 100 gross tons engaged in interstate commerce, exclusive, however, of those operating on the Great Lakes and inland waterways and, as such, non-ocean-going. Filing written assent constitutes code membership.

STATUS OF THE MERCHANT FLEET

It may be said that neither much upbuilding nor maintenance by replacement were in evidence during the year. New tonnage ordered embraced two 5,200-ton cargo carriers for the A. H. Bull Steamship Co.; a 265-ft. ferryboat for the Virginia Ferry Co.; a 1,900-ton combination passenger and cargo vessel for the Northland Transportation Co.; fourteen small coast-guard vessels; one lighthouse tender, together with a far from unimpressive assortment of miscellaneous auxiliary craft. Not a single launching of private ownership tonnage took place in the class of 1,000 tons or more. Notable among the 201 vessels aggregating 138,288 tons completed and passed into service were the United States liner *Washington,* the Matson liner *Lurline,* the Grace liners *Santa Lucia* and *Santa Elena,* and the United Fruit liner *Peten.* There is a prospect that in 1934 the United States Lines may add to its fleet another cabin liner of the *Manhattan* and *Washington* type because of the popularity of these vessels in service and by way of replacing the *Leviathan,* returned to the Shipping Board.

At the end of the fiscal year, seagoing tonnage of the American merchant marine was represented by 1,997 vessels of 9,343,890 tons reckoned on a basis of 500 gross tons and over. Private ownership was credited with 1,530 steel vessels of 7,819,951 tons and 271 wood vessels of 371,722 tons. Credited to the United States Shipping Board were the remaining 196 vessels of 1,152,217 tons, the basis of reckoning in its case being 1,000 gross tons and over. Of the 1,997 seagoing craft, 747 of 3,923,165 tons were engaged in foreign trade and 1,250 of 5,420,725 tons in coastwise trade.

PROGRESS IN AERONAUTICS

By Leslie E. Neville

Managing Editor, *Aviation*

INTRODUCTION

As 1933 closes, the aviation industry as a whole appears to have passed a critical point in its development and, there are indications of a definite upward trend. The rapid progress of air transport has ceased to be news, and the group of the public depending on the airlines for fast transportation grew faster than in any previous year. Air express poundage is mounting rapidly and air mail poundage suffered only a small decrease considering the handicap of increased postal rates that became effective in 1932 along with the general increase in all postage. Aircraft production, which slumped seriously after the boom years, has increased appreciably over that of 1932 largely because of the long awaited replacement of equipment by the airlines. The export of aeronautical product has shown tremendous gains in volume along with other foreign trade increases resulting from the world monetary situation.

As a result of aviation's first major change in national politics, a complete reorganization was effected in the Aeronautics Branch of the Department of Commerce. The office of Assistant Secretary of Commerce for Aeronautics was abolished, and an Assistant Secretary of Commerce for Transportation, together with four men concerned immediately with aeronautics problems, were appointed. Later the organization was modified and the new office of Director of Aeronautics created with Eugene L. Vidal, former air transport executive, selected for the post.

The industry has been knitted more closely together through the reorganization of the Aeronautical Chamber of Commerce, the accepted trade association, under the National Recovery Act. Thomas A. Morgan, president of the Curtis-Wright Corp., is president and Leighton W. Rogers, formerly chief of the Aeronautics Trade Division, Department of Commerce, executive vice-president directing activities of the organization. Two codes have been submitted for approval. The transport code was approved and became effective in November, while progress has been slower on the manufacturers code at the time of writing. The final draft of the transport code indicated an increase of about 15 per cent in personnel and 20 per cent in total payroll for the air transport industry. Such an increase in expenditure coupled with steadily decreasing contract rates to air mail transport operators constitute a real problem for the operators and make it necessary for them to look for sources of increased revenue.

TRANSPORT

Transcontinental Trunk Lines. — At present there are three transcontinental trunk lines—United Air Lines (Northern); Transcontinental & Western Air (Mid-Continent); and American Airways (Southern). On the Atlantic Coast, Eastern Air Transport connects New York with Miami while American Airways operates between New York and Montreal, and Boston. On the West Coast, Pacific Air Transport (a division of United) operates between Seattle and San Diego. The Northwest district, including the Twin Cities, is covered by Northwest Airways, connecting Chicago with Spokane *via* Billings, Mont. A number of feeder lines are also in operation.

Consolidations.—The final stages in gaining control of American Airways by the E. L. Cord interests and the acquisition of Transamerican and Martz Air Lines were enacted in 1933. Among the other important consolidations were the purchase of Ludington Airlines by Eastern Air Transport and the subsequent merger of North American Aviation and General Aviation which placed Eastern Air Transport and Transcontinental & Western Air (Mid-continent-transatlantic route) under one management.

Railroad-airline Services. — Several railroads, atracted by the progress of the air lines, and admonished by the report of the National Transportation Committee to get into the business if disturbed by air competition, have been aroused to action. Studies are being made and plans considered for the establishment of airline services or the acquisition of existing lines, and the Boston & Maine Railroad has actually sponsored an air service between Boston and Portland and Bangor, Me. During the summer the New Haven Railroad sponsored a service between New York and the Cape Cod resorts, and Saratoga, operated by Island Airways.

Congressional Appropriations. — Although the airlines are well on the way to self support, some financial assistance in the form of adequate air mail appropriations is still necessary. During the course of the Lame Duck Session of Congress the appropriation was reduced from the $19,000,000 of last year, through several stages to zero; subsequently the $19,000,000 was restored, then reduced, and finally closed at about $12,000,000. With the increased demands of the NRA code this works a serious hardship on many of the lines.

Labor Problems.—With the introduction of the high speed equipment, the transport industry was threatened with a pilots' strike, because of the contention by certain pilots that wages should be on a mileage rather than hourly basis. Pending the decision of the National Labor Board, a new standardized wage scale was adopted which provided an annual income ranging from approximately $6,000 to $8,000 for first pilots. In the final draft of the air transport code, pilots were excluded.

TRANSPORT STATISTICS

Mileage Flown.—Comparing the total transport figures of the Aeronautical Chamber of Commerce for the first nine months of 1932 with those for the same period of 1933, we find a very rapid growth. In 1933 38,453,212 airplane miles were flown as compared with 36,695,809 airplane miles for the same period in 1932. 415,523 passengers were carried as compared with 390,600 in 1932. Passenger miles were up 25 per cent from 108,304,869 to 135,376,590 for the nine months periods. Although mergers and consolidations have tended to reduce the number of operating companies and changes are being made in the interests of economy, more than 140,000 miles are being flown daily by approximately 22 mail and passenger operating companies over foreign and domestic routes covering a combined length of approximately 50,000 miles.

Air Mail and Express.—In spite of the set-back resulting from the increased postal rates in 1932, air mail has shown only a 6 per cent drop. For the first nine months of 1932, 5,975,262 pounds were carried as compared with 5,578,402 for 1933. 1,019,973 pounds of air express carried in the first nine months of 1932 were increased to 1,278,797 pounds carried in a similar period in 1933.

SERVICE AND FARES

Twenty-one hour transcontinental service has become an accomplished fact, with eighteen-hour service promised as the year comes to a close.

Airplane Sleepers. — Tremendous progress has been made toward the solution of the noise problem in airplanes (see *Research*) and several steps have been taken in the direction of airplane sleeper service. Airlines have been refitting their planes for the purpose and using them experimentally on night runs.

Fares.—Little change has been made in airline rates of fare, which averaged six cents per mile and are comparable to standard charges of extra fare railroad trains. Special round-trip rates, in general remain close to railroad fare, less extra fare. In making comparisons, it must be remembered that meals are included in air line fares. Railroads have been cutting rates, however, in competition and, as the year closes, are planning to institute higher speed services with the new streamline trains.

AIDS TO NAVIGATION

Lighting.—Although some changes are being made so that the Airway Division of the Department of Commerce will be able to operate within its curtailed budget the mileage of airways fully equipped by the Federal Government for night flying is substantially the same as it was last year, the figure at that time being 19,500 miles. There are nearly 700 partially or fully lighted airports and about 300 lighted intermediate fields along the airways, and nearly 2,000 flashing or revolving beacons in the Federal Airway System.

Weather Service.—The number of stations operated by the United States Weather Bureau remains approximately the same, and radio telephone reports are received and broadcast at intervals, providing transport pilots and other pilots with local conditions for various areas. These stations are all interconnected by radio telephone and telegraph.

Radio Beacons.—The radio range beacon, which guides transport planes between stations and is now in general use on practically all of the transport lines, makes blind flying a regular procedure. The research work on blind landing continues and, early in the year, a long series of tests were made with a radio landing beam, developed through the efforts of the Department of Commerce, which is capable of bringing the airplane into the center of the field under visibility conditions that would make ordinary landing impossible. Development of this device is continuing and it appears to hold considerable promise.

Air Marking.—Valuable contributions to the marking of airways and airports have been made by state aviation departments, the Department of Commerce and various individual and civic organizations.

Miscellaneous Services.—In the unscheduled transport activities there is a considerable group of airplanes used in taxi, photographic and miscellaneous services, including seeding, crop dusting, and advertising. A novel form of aerial advertising which involves towing a banner bearing letters of approximately 9 feet in height has provided opportunities for a number of airplanes and autogiros during the past year.

TRANS-ATLANTIC SERVICE

As the year came to a close activities of various aeronautical interests gave promise of the possibility of one or more trans-Atlantic services for the summer of 1934. Completion of a long series of tests in the South Atlantic with the German seaplane *Monsoon* and the catapult ship *Westphalen* has led to the announcement that mail service would probably be instituted by Lufthansa next spring. Aeropostale, in France, is also contemplating a transatlantic service.

PRODUCTION

Low Price Plane Possibilities.—While production of airplanes for transport service has increased in response to the demands of operators for new equipment, the manufacture of airplanes for private and limited commercial use continues to lag. There has been a strong feeling throughout the industry that, with the large number of licensed pilots who do not own airplanes, a low priced airplane might serve as the solution to the production problem. Acting on this belief, Eugene L. Vidal, Director of Aeronautics of the Department of Commerce, began a survey of the possibilities of a market for such an airplane by sending questionnaires to every pilot on the license list, asking whether or not he would purchase such an airplane if it were available at about that price. Manufacturers of aircraft have received the idea with mixed feelings but most of them are anxious to coöperate. Automative manufacturers also are interested.

Increased Production.—According to figures of the Aeronautical Chamber of Commerce, the dollar value of the total production of commercial and military aircraft and engines for the first nine months of 1933 was $21,594,887 as compared with $16,971,163 for the same period in 1932, an increase of 27 per cent. Production of military aircraft dropped slightly in the 1933 period and military engine production dropped about 25 per cent. Commercial aircraft production increased three-fold and engine production more than doubled in 1933 because of the need of the transport operators for modern high speed equipment. There were 384 military and 478 commercial planes produced in the nine month period of 1933 and 710 military and 884 commercial engines manufactured in the same period.

AIRPORTS

On Nov. 1, 1933 there were 556 municipal and 656 commercial airports. Fifty-five airdromes were maintained by the Army and 18 stations by the Navy, including Marines and Coast Guard. Miscellaneous government, private and state airports numbered 81. There were 266 Department of Commerce intermediate fields and 540 marked auxiliary fields. Of these, 627 were equipped with lighting equipment. In the closing weeks of the year, a program to provide 2,000 additional airports from an allotment of $10,000,000 from the funds of the Civil Works Administration was initiated by Eugene L. Vidal, Director of Aeronautics, Aeronautics Branch, Department of Commerce. A movement to include seaplane bases in the program was also underway.

LICENSES AND PERMITS

Department of Commerce figures of Nov. 15 show 14,190 valid pilot licenses, or about 20 per cent less than last year's figure, while valid student permits advanced about 10 per cent to 10,844. Mechanics' licenses numbered 8,343. The number of valid airplane licenses in November was 6,862 as compared with 7,369 at the same time last year. Airplane designs approved for manufacture numbered more than 519, approved type certificates for engines, 108, and for propellers, 412. In order to encourage private flying the Air Commerce regulations pertaining to the licensing of pilots have been amended.

RESEARCH AND DESIGN

Speed Factors.—Research in areodynamics, which is largely in the hands of the National Advisory Committee for Aeronautics, has been characterized during the year by a relentless pursuit and elimination of the factors contributing to airplane drag and therefore detracting from the maximum speed. The fruits of this work have been the phenomenal increases in speed obtained by military and commercial planes, which have made possible the new fast schedules of the airlines. Closely associated with the problem of the high speed airplane is that of obtaining a low landing speed which involves the use of variable lift devices in conjunction with the wings. Important progress has been made in the study of flaps, spoilers, and other lift-changing devices.

Engines. — Another important study in the work of the Committee has been the determination of the ideal position of engine with respect to wing for greatest aerodynamic efficiency. A study of the effect on speed of the propeller of a dead engine has been made to determine the ideal conditions for emergency operation of twin-engined airplanes with one engine dead. The major research program devoted to investigations of radial engine cowling and cooling, which has contributed so much to higher speed, is still under way.

Vision.—Vision from the pilot's cockpit and reduction of blind spots have been the objects of a systematic investigation by the N. A. C. A. and valuable results may be expected. The study of rotating wing machines has been extended to include the cyclogiro, familiarly known as the "paddle-wheel rotor" plane, and some indication of the performance to be expected from this type of aircraft is the result.

Power and Fuel.—In the power plant division of the laboratory, important work has been done in the study of the cooling problems of double-row radial engines, the application of safety fuel (125° F. flash point) to gasoline engines, the two-stroke cycle compression ignition engine, and other fundamental problems.

RETRACTABLE LANDING GEARS

One of the most important factors contributing to high speed airplane design is the retractable landing gear. Since the airplane is the only vehicle of transportation that must operate in two media, *viz.*, on land and in the air, the landing gear is an essential element in the design as it is now constituted. As the air resistance of the landing wheels and their supporting structure in flight became almost prohibitive at high speed, various means were sought to withdraw the entire undercarriage out of the air stream and into the fuselage. At the present time all of the high speed American transport planes are equipped with retractable or semi-retractable landing gears. Where retractable landing gears are undesirable, considerable progress has been made in the matter of cleaning up the design of normal types of landing gear. Probably the most effective landing gears of this kind is the centilever type in which the wheel is supported on a single member, extending into the fuselage, with shock absorber mechanism on the inside.

AIRCRAFT SPEEDS

The result of the refinements of design has been a series of transport planes that are capable of cruising at speeds ranging from 150 to 200 miles per hour in regular service. In racing, the world's seaplane record, and in fact the record for all types of planes, was broken on April 10 in Italy by Sergeant-Major Francisco Agello who attained a speed of 424.033 miles per hour in an NC-82 low wing twin-float seaplane powered with a Fiat A.S.6 engine developing 2900 hp. at 3,000 r.p.m. This exceeds the previous record by some 17 miles per hour. The American land plane record was advanced from 294 miles per hour to 305.33 miles per hour by James R. Wedell at the National Air races.

AIRPLANE NOISE

Remarkable strides have been made in the silencing of airplane cabins and the new transport designs of 1933 are far superior to their predecessors in this respect. In most cases the noise level in the cabin has been reduced to about 70-72 decibels, a point below that of the average Pullman car and conversation can be maintained between any points in the cabin without effort.

AIRCRAFT TYPES

Monoplanes. — Practically all of the new transport airplanes are monoplanes of the internally braced, cantilever type, with the exception of the Curtiss Wright Condor in the United States and the Bolton and Paul mailplane in England, both of which are biplanes. Biplanes and externallly braced high wing monoplanes predominated in the private airplane classes of this country, while in Europe low-wing cantilever monoplanes increased in number. In the multi-engined field, most of the new cantilever monoplanes were of the low wing type except for the Martin twin-engine bomber in the United States, which comes properly in the center wing class, and the high wing high speed Fokker S-20 three-engine monoplane, in Holland.

Twin Engines.—A desire to obtain greater economy in operation has led to a tendency in the United States toward the twin-engine type of airplane and most of the new production transports are in this category. The application of the twin-engine principle has been made possible by increased efficiency in design permitting maintenance of flight with one engine dead. Much of this efficiency is due to the development of the controllable pitch propeller.

Single-engine machines are still used extensively in private and business service. During the course of the past year, however, amphibions were projected and completed having performance comparing favorably with that of landplanes.

Engine Performance. — The average airplane for private use is powered with an engine of 200 to 300 horsepower, but many of the smaller sport and training machines use engines in lower horsepower ranges. Vertical and inverted-in-line engines in the lower horsepower ranges continue to be used, but two-stroke cycle engine types have not come into very general use, mainly because of the high mortality in the ranks of the light plane manufacturers. Diesel engine development appears to be at a standstill and this type of engine does not seem to have found the application that it deserves. Fuels and lubricants of high quality and uniformity have contributed greatly to improved engine performance.

ROTARY WING DESIGNS

A new autogiro having no wings and no rudder, control being obtained laterally, has been developed abroad. The application of the autogiro to regular transport service has entered the realm of possibility and, while there are still a few technical problems to be solved, the possibilities of landing in the center of cities are sufficiently attractive to encourage work in this direction. The Wilford gyroplane, which differs from the Cierva type in that it embodies feathering rather than articulated vanes, has undergone some development and an order for a rotor system of this type has been placed by the Navy Department. A very different type of rotating machine known as the Cyclogyro (see page 553), gained first public attention during 1933. This machine was sponsored in the United States by Haviland H. Platt and by Dr. Adolf Rohrbach in Germany. Although it is still in the design stage, it is worthy of further development because of the vertical rising landing possibilities of the type.

MATERIALS AND FABRICATION

All of the principal American transports were constructed of metal with some differences in covering material. While one of the principal designs embodies the use of fabric covering, the others, for the most part, were of all-metal monocoque construction, in which the skin or covering material contributes to the rigidity of the structure and bears a certain portion of the stresses. The fabric-covered machines have structures of welded chrome molybdenum steel tubing, while the all-metal ships are built of riveted aluminum alloy, the shell or covering material being stiffened by structural members of various section shapes. The wings of the transport airplanes having welded steel fuselages are usually of the same material with fabric covering, while the wing structures of the aluminum alloy machines are built in a manner similar to that of the fuselages. The airplanes in the medium and low weight classes are for the most part built up of welded steel tube fuselage structures and wooden wing structures, both covered with fabric.

AIRSHIPS

Completion of the rigid dirigible *Macon* had fulfilled the immediate requirements of the Navy for lighter-than-air machines, but the unfortunate loss of the *Akron* created a need for another ship of this type and it was thought that the *Los Angeles* might be commissioned again after its retirement in an effort to fill the gap. In the November maneuvers on the Pacific Coast the effectiveness of rigid airships was proved by the ability of the *Macon* to remain unobserved despite the efforts of the battleships to locate her during a long period.

POWER PLANT DEVELOPMENTS

Engine Design.—While no radical designs mark the progress of engine developments during 1933, the refinement of existing types and the continued improvement of the twin row radial air-cooled design constituted the major progress in this field. Most of the design work has been concentrated on engines for high-performance commercial and military services.

The air-cooled engine has almost completely superseded the water-cooled type generally, and has completely done so in the transport field, all of the new high-speed transport machines being equipped with air-cooled engines. Liquid-cooled engines, however, are still used to some extent in military services and the application of high temperature liquid cooling has been used to some extent.

Radial Engines.—Development of the radial engine with particular attention to supercharging and other methods of obtaining increased output with lower weight and smaller frontal area has been progressing at a reasonable pace. Most of the principal manufacturers of military engines have introduced radial air-cooled engines having double rows of cylinders and, toward the end of the year, the first installation of a double row radial engine on a commercial plane for investigation and experimental use was announced.

Superchargers.—Superchargers of the built-in centrifugal type have been improved to a degree of reliability comparable to that of the other vital parts of the engine.

CONTROLLABLE PITCH PROPELLERS

Another important accomplishment is the practical application of the controllable pitch propeller of which three types are now available. This type of propeller is being used extensively on the new twin-engine transports and, through its use, performance with one engine dead had been appreciably increased. At the present time there are available three types of controllable propellers, having hydraulic, mechanical, and electric control. Although aluminum alloy blades are still extensively used in all types of service, hollow steel blade types are beginning to find some application in power plant installations.

INSTRUMENT RESEARCH

Developments in blind flying and landing have been discussed previously, and the use of the artificial horizon and automatic pilot has also become more extensive. The work of the

United States Army Air Corps, which includes the development of the homing type of radio beacon, has been continued. The homing beacon is a device which makes it possible for a pilot to tune in on the program of any regular broadcasting station and apprises him of any departure that his plane may make from a direct course to the station.

THE RADIO

By W. R. G. Baker

Vice President, RCA Victor Company

PUBLIC SERVICE

The past year, with its many changes in our social, economic, and industrial structures, witnessed substantial progress in the radio art and a greater utilization than ever before of its ramified applications. In the early stages of its development radio, or ''wireless'' as it was then known, played its greatest part in the protection of the lives of persons aboard ocean vessels. Now it serves as well in giving information to the aircraft pilot to assist him in maintaining his course and landing safely during the severest weather conditions. Similarly, it finds a role in the protection of our urban citizens by providing a means of quick and reliable communication between police headquarters and cruising patrol cars, thus greatly facilitating the apprehension of criminals.

In a much larger way, radio has provided the news, entertainment, and intellectual improvement to approximately 17,000,000 homes in the United States, and no doubt has contributed in no small measure to lifting the country out of its worst depression. No one, perhaps, has appreciated more the tremendous influence and possibilities of radio broadcasting than President Roosevelt who used repeatedly, during the year, this means of conveying his messages to the American people. Broadcasting from the House of Representatives took place, for the first time, shortly after the beginning of the new Administration and this also had the effect of stimulating interest in our Government's activities.

LITIGATION

By a consent decree which was handed down by the United States Court for the District of Delaware in November, 1932, the suit filed by the Department of Justice against the Radio Corporation of America in May, 1930 was terminated and control of that corporation passed out of the hands of the General Electric and Westinghouse Electric and Manufacturing Companies. This suit challenged the legality of the exclusive character of the cross license agreements through which the radio rights under patents of the General Electric Company, American Telephone and Telegraph Company, Westinghouse Electric and Manufacturing Company and others, were brought together in the Radio Corporation of America. The defendants, without conceding or admitting the truth of the Government's allegations, realized that continuing the defense of the suit would involve needless expense and they therefore agreed to settle and adjust the differences. In the readjustment which followed the consent decree, RCA retained the rights to grant licenses to other manufacturers for radio purposes under its own patents and the patents of the General Electric and Westinghouse Companies. Also, the Radio Corporation received additional rights under the patents of the other companies to extend its business into the manufacture and sale of radio transmitters, transmitting tubes and devices using vacuum tubes for certain other than radio purposes. The settlement of this suit has had the effect of clarifying the radio patent situation and promoting stability in the industry. Following the consent decree, the $30,000,000 suit of the Grigsby-Grunow Company against the Radio Corporation of America was dropped and an amicable settlement made.

MANUFACTURE AND SALE

Business Improvement.—The radio industry felt the improvement in confidence throughout the country which was reflected in an increased demand for radio receivers, especially during the second half of the year when some manufacturers were barely able to fill their orders. During the first quarter, prices continued downward with manufacturers making little or no profit on their output. During the following months, there was definite improvement in business due, for the most part, to the increased demand for automobile radio receivers. Prices increased slightly at that time. It is estimated that 3,000,000 radio sets were sold during 1933.

Operation Under NRA.—With the establishment of the National Recovery Administration, the radio industry prepared a code under which it proposed to operate but this code proved unacceptable to the Administration. As a result, permission was obtained to come in under the National Electrical Manufacturers Code which had already been approved by the President. This code fixes 36 hours as the maximum week's work in processing departments and prohibits employment of persons under 16 years of age. The effect of the Code was to increase employment in radio factories and to increase the wage rates of the workers. However, this also increased manufacturing costs which was reflected, at least partially, in higher list prices.

Surplus Stocks.—There was a considerable decrease during 1933 of surplus stocks and distress merchandise which, in the past, have had a harmful effect on the industry. The general improvement in business and fewer number of business failures were partly responsible for this condition. The effect of the NRA Code also was to eliminate certain injurious trade practices and thereby promote stabilization.

RETAIL RADIO SALES
(from *Radio Retailing*)

Product	1929	1930	1931	1932
Radio Sets, All Types Including Auto-Radios and Combinations:				
Number	4,438,000	3,827,800	3,420,000	2,620,000
Value	$592,068,000	$332,198,000	$212,040,000	$124,860,000†
Tubes:				
Number	69,000,000	52,000,000	53,500,000	44,300,000
Value	$172,500,000	$119,600,000	$69,550,000	$48,730,000
A–B–C (Dry) Batteries:				
Value	$30,530,000	$21,514,000	$13,100,000	$9,500,000
Accessories*:				
Value	$39,950,000	$17,120,000	$8,580,000	$6,200,000
Parts Sold to Consumer:				
Value	**$7,500,000	**$6,000,000	**$6,000,000	**$6,900,000
TOTAL VALUES:				
Sets, All Types	$592,068,000	$336,717,500	$212,040,000	$124,860,000
Tubes, Accessories, Batteries	$242,980,000	$158,234,000	$91,230,000	$64,430,000
Parts	$7,500,000	$6,000,000	$6,000,000	$6,900,000
GRAND TOTALS FOR YEAR	$842,548,000	$500,951,500	$309,270,000	$196,190,000

* Includes speakers, aerial equipment, meters, pick-ups, turntables, furniture, power units, storage batteries, chargers, etc.

† Does not include tubes, at an estimated retail value of $16,280,000.

** Estimated.

RESEARCH

Study of Short Waves.—Research workers delved further into the generation, reception and behavior of the short radio waves and gained much valuable information. Marchese Marconi, who is credited with the invention of the first practicable radio communication system, has devoted much of his effort to the study of these waves. On his visit to the United States during the past year, he told of experiments which indicated that radio waves below 10 meters in length may be projected beyond the horizon, and investigation in this country seemed to substantiate his belief that transmission of very short waves is not limited to line-of-sight distances. Marconi claims transmission of 180 miles at frequencies of 500,000,000 cycles or waves of 60 centimeters length. These signals were entirely free from static but were affected considerably by fading. At the California Institute of Technology, waves of 3 millimeters lengths were produced.

Television.—Research in the field of television continued with vigor but, although considerable progress was made, little attempt was made to market apparatus for home reception of images. Methods were developed for direct pickup of scenes requiring no other than natural illumination. One method, utilizing a special type of cathode ray tube called an Iconoscope, shows considerable promise, having the advantages of utilizing no moving mechanical parts and, at the same time, permits scanning with very fine definition.

Vacuum Tubes.—Early in the year, new types of tubes using a glow discharge rather than the conventional filament, were demonstrated, functioning as detectors, amplifiers and oscillators. These tubes were made with cathode and anode of iron, control grid of molybdenum and containing neon or helium gas at pressures of three to six millimeters of mercury. Experimental studies were also made of conventional type tubes of very small size having maximum dimensions of only three-fourths of an inch, about one-tenth the size of ordinary radio tubes. With these small tubes used as oscillators, wavelengths of slightly below 30 centimeters were reached. Transmitters and receivers using several of these tubes were operated successfully on wavelengths of 75 centimeters and 100 centimeters. Special types of vacuum tubes were developed with which currents of the order of 10-18 ampere, or approximately six electrons per second, can be measured.

BROADCASTING

Improved Facilities and Technique.—The year showed further advancement in the extent and quality of service of radio broadcasting. The Federal Radio Commission granted further permits for higher power, bringing the number of stations to 28 permitted to use the maximum of 50 kilowatts. In a formal report issued jointly by the National Electric Light Association, National Electric Manufacturers Association, and Radio Manufacturers Association, it was urged that higher power in broadcasting be used for satisfactory operation of receiving sets and reduction of interference. At the close of the year there were 585 licensed broadcasting stations in the United States. Of this number, 87 are affiliated with the two National Broadcasting Company networks, 88 constitute the Columbia Broadcasting System chain, and 12 form the recently organized Amalgamated Broadcasting System group. In November, the magnificent new studios in Radio City, which constitutes a part of the Rockefeller Center development in New York City, were inaugurated with appropriate programs. In this group are 35 studios, the largest being 78 by 132 feet and three stories in height, all equipped with the most modern furnishings and devices known to the art. In anticipation of future developments, provisions have also been made for visual broadcasting.

Mexico City Radio Conference.—The North American Radio Conference, held at Mexico City in August, failed to reach any satisfactory agreement as to wavelength allocations for broadcasting stations in Canada, United States, and Mexico. Aside from very minor agreements on such questions as channel separation, the most important decision made was to utilize the frequencies between 1,500 and 1,600 Kilocycles for broadcast transmission.

Federal Court Decision.—Of importance to the broadcasters and to the public was the decision of the United States Supreme Court in a case involving stations WJKS, at Gary, Ind., and WIBO and WPCC in Chicago. The first-named station applied to the Federal Radio Commission for use of the wave-length then and previously used by the other two stations, on the basis that Indiana was 22 per cent under its quota and Illinois 55 per cent over its quota in station assignments. After a hearing, the Commission ordered the application of WJKS be granted, and WIBO and WPCC deleted. This decision was reversed by the Court of Appeals and subsequently upheld by the Supreme Court. The Court's decision established the authority of the Radio Commission to reduce the facilities in states having more than their quota and to assign them to areas which are under the quota; that stations possess no property rights in their channels and exist only by virtue of the license granted by the Commission; that Congress is supreme in its power to regulate interstate commerce as it relates to radio and can delegate such powers to the licensing authority which it has created, and that the quota system of the Commission is valid as an act of administrative judgment in compliance with the law.

''Auditory Perspective.'' — Of especial interest was a demonstration, conducted by the Bell Telephone Laboratories, in which the music of Dr. Stokowski's Philadelphia Orchestra was transmitted to the audience of the National Academy of Sciences meeting in Constitution Hall, Washington, D. C. over three wired-radio channels and reproduced in separate loud speakers to create the illusion of what might be termed auditory perspective or stereoscopic hearing. To the audience it seemed as if the music was coming from the various instruments located in their proper positions across the stage. The three loudspeakers were placed in the same relative positions as the corresponding microphones in the Philadelphia Academy of Music. The wide range of tone frequencies transmitted—40 cycles to 16,000 cycles per second—and the great volume which could be obtained added further to the realism.

Special Broadcasts.—Foreign transmissions received on short-wave equipment and rebroadcast over the national networks continued to be popular. Special broadcasts from the stratosphere balloon flight of Commander Settle and from the Antarctic voyage of Admiral Byrd were of considerable interest.

TRANSMITTERS

Improved Equipment. — Though there were no outstanding developments in radio transmitters, progress was made toward simplifying them and improving their operating characteristics. A difficult problem in the design of broadcast transmitters has been to obtain faithful conversion and transmission of the high frequencies found in music and speech and, at the same time, to suppress the undesirable harmonic frequencies which are produced because of the inherent characteristics of vacuum tubes and associated apparatus. This problem received much attention during the year, resulting in better transmission equipment.

WLW 500 Kilowatt Station.—During the early part of the year, construction was started on a new transmitting plant for station WLW to be located at Mason, O. It will have a rating of 500 kilowatts, the most powerful transmitter in the United States. Since the Federal Radio Commission permits a maximum power of 50 kilowatts for broadcasting purposes, this transmitter will be operated on an experimental basis for the time being.

Directive Antennas.—Further use of, and improvement in, directive antennas were made with resultant improvement in the efficiency of radiation. Through the use of such antenna systems, broadcasting stations have improved their coverage as well as reduced undesirable interference and fading. Aircraft beacon transmitters have been equipped with antennas having very sharp directional characteristics.

RECEIVERS

Refinements. — Improvements in radio receivers consisted mainly of refinements in circuit design and the utilization of new types of vacuum tubes which made possible greater sensitivity and power output, for a given amount of input power as well as improved fidelity. The higher priced receivers employed as many as fourteen vacuum tubes while the low priced instruments, in most cases, employed no less than four. Automatic volume control and tone control were featured in all but the small receivers.

Small-type Receivers.—During the early part of the year the trend was toward very small compact sets having four or five tubes and made to operate from either a direct current or alternating current supply. The popularity of these small instruments was due to their extreme portability and to the reduced purchasing power of the consumer. Most of them were equipped with an antenna wire and required only to be connected to a source of current.

Automobile Receivers.—The large demand for automobile radio sets led to greatly improved and simplified designs and lower prices. This type of receiver utilized from four to eight vacuum tubes and obtained tube plate voltage either from dynamotor units or vibrator-rectified units. In most cases, the entire receiver was in one unit with provision for remote control of tuning and volume.

All-wave Receivers.—The popularity of instruments capable of receiving short-wave signals as well as the standard broadcast waves showed a marked increase. Some were designed to include police broadcasts at 1720 kilocycles and 2440 kilocycles while others were intended for reception on all frequencies from 540 kilocycles to 20,000 kilocycles, this range being divided into four or five bands. Such instruments made possible direct reception of foreign short-wave broadcasts.

Multi-function Tubes. — Notable advancement was made in the development and manufacture of radio tubes. Outstanding among the new developments was the combination of several elements in one envelope, making it possible to employ a single tube for several functions. Thus, one type of tube appeared which would perform the functions of oscillator and first detector in the superheterodyne circuit, while others were made to perform the functions of intermediate frequency amplifier, second detector, automatic volume control, and audio frequency amplifier. These tubes, with their smaller space requirements, made possible the very compact automobile and table-type receivers.

New Mechanical Construction. — Improved mechanical structure of vacuum tubes made them more rugged and stable in operation. Some development work was done on all-metal tubes which have found favor in England.

New Use of Electron Tubes.—The past year saw rapid growth in the applications of electron tubes to uses other than radio. In the new RCA building, New York City, 58 elevators are provided with photocell protective devices which cause the doors to reopen if a passenger steps across the doorway. Photocells are also being used in half-tone engraving equipment, reducing the time required for the making of a newspaper cut to one-fourth that used by the usual process. Hundreds of applications in color analyzing and matching, traffic control and control of industrial processes have been found for these light-sensitive tubes as well as for oscillator and amplified tubes.

POLICE RADIO

One hundred cities in the United States are now provided with police radio systems and many other municipalities have applied for construction permits. New York City has four transmitting stations and 409 scouting cars equipped with receivers. In some localities adjacent cities use wavelengths so close together that each is able to hear the other's reports and render assistance if necessary. In New York City, records show that, ordinarily, not more than a minute and a half elapses between the receipt of a call for investigation or assistance and the arrival of at least one car at the scene of the disturbance. Bayonne, N. J., uses a 25-watt transmitter operating on a wavelength of 8.6 meters; the patrol cars are equipped with receivers and 4.5 watt transmitters.

AIRCRAFT RADIO

Marked advancement was made during the past year in aviation radio communication and range beacons for guiding aircraft in flight. Tests and demonstrations were made at the Newark, N. J. Municipal Airport which indicated the practicability of a system developed by the Bureau of Standards to assist aircraft in making a safe landing under conditions of zero visibility. In this system a runway localizing beacon gives indications of the directional position of the aircraft and permits keeping it directed to and over the desired runway. A second beacon indicates to the pilot the vertical position of the aircraft. These, together with marker beacons indicating the boundaries of the field, enable the pilot to follow a predetermined course and land even when the field is not visible beneath him. The transcontinental passenger and mail lines rely to a great extent on their radio communication and direction-finding equipment.

STATISTICS OF MANUFACTURES

By LeVerne Beales

Chief Statistician for Manufactures, U. S. Bureau of the Census

DOWNWARD TREND OF PRODUCTION

Manufacturing in the United States reached its peak in 1929, for which year a greater gross production and a greater production per wage earner were reported than for any prior census year. Unfortunately, no complete record is thus far available for any subsequent year except 1931 (the manufactures census being taken biennially), but it is a matter of common knowledge, confirmed by employment statistics compiled by the Bureau of Labor Statistics, Department of Labor,* and by the census statistics for 1931, that from the latter part of 1929 until March, 1933, the general trend of industry was downward.

For 1931 the census revealed a decline in production, measured quantitatively, not only as compared with 1929 but also as compared with all earlier census years since 1921, and measured in dollars, as compared with all earlier years since 1914. (The census was taken quinquennially prior to 1919.) And when the comparison is based on the number of wage earners employed, it is necessary to go back to 1904 to find a year for which the amount of industrial activity recorded was less than that reported for 1931. The indexes (page 562) and ratios show clearly the growth and decline in manufacturing industry from the beginning of the twentieth century until 1931.

It is interesting to note that, although fewer wage-earners were employed in 1931 than in 1921, the quantity of products manufactured was considerably larger in the later year than in the earlier one. In fact, the production index for 1931 (220) is nearly 30 per cent larger than for 1921 (170). The increase in productivity per wage-earner—one of the outstanding fruits of the Machine Age—within the period of a single decade is brought out by a comparison of the indexes for 1921 and 1931 (116 and 158, respectively) in the fourth column. Or if the comparison be made between 1919 and 1929, the increase (from 112 to 162) is still more striking. These figures throw much light on the phenomena of unemployment and overproduction. The lower table presents a comparison of the 1929 and 1931 figures, with percentages of decrease.

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*See "Fluctuations in Wage-Earner Employment," page 564.

It will be noted that the smallest per cent of decrease is shown for number of establishments (16.9) and the next smallest (26.2) for number of wage-earners, whereas the items expressed in dollars show considerably larger rates of decline.

INDEXES AND RATIOS FOR POPULATION, WAGE EARNERS, PRODUCTION, AND POWER, 1899 TO 1931

Census year	Indexes: Population	Indexes: Wage earners	Indexes: Production (quantity)[1]	Indexes: Production per wage earner	Indexes: Horsepower[2]	Ratios: Horsepower per 100 wage earners[2]	Ratios: Wage earners per 1,000 population
1899	100	100	100	100	100	211	63
1904	110	114	122	107	133	248	65
1909	121	137	159	116	186	287	71
1914	131	146	169	116	224	323	70
1919	140	191	214	112	294	326	86
1921	145	147	170	116	[3]	[3]	64
1923	149	186	261	140	332	377	79
1925	154	178	[4]269	[4]151	359	427	73
1927	158	177	272	154	390	465	71
1929	162	188	[4]305	[4]162	431	486	73
1931	165	139	220	158	[3]	[3]	53

[1] For 1899 to 1925, inclusive, computed by Edmund E. Day and Woodlief Thomas; for 1927, by Miss Aryness Joy, Federal Reserve Board; for 1929 and 1931, computed by applying to 1927 index as a base the rates of increase in 1929 and decrease in 1931 as calculated by Frederick C. Mills, National Bureau of Economic Research.

[2] Covers rated capacity of prime movers and of motors driven by purchased electric energy.

[3] No data. [4] Revised.

SUMMARY FOR MANUFACTURING AND PRINTING AND PUBLISHING INDUSTRIES, 1931 AND 1929

	1931	1929	Per cent of decrease
Number of establishments	175,375	210,959	−16.9
Wage earners (average for year)	6,523,026	8,838,743	−26.2
Wages[1]	$7,185,970,623	$11,620,973,254	−38.2
Cost of materials, containers, fuel, and purchased electric energy	$21,483,677,876	$38,549,579,732	−44.3
Value of products	$41,350,464,564	$70,434,863,443	−41.3
Value added by manufacture[2]	$19,866,786,688	$31,885,283,711	−37.7

[1] Not including salaried employes. Calculated by totalizing the numbers reported for the several months of the year and dividing by 12.

[2] Value created by manufacturing processes. Calculated by deducting cost of materials, containers, etc., from value of products.

DECREASE IN ESTABLISHMENTS AND WAGE-EARNERS

The decrease in number of establishments was due in part to the fact that the amount of business done by many small concerns which were active in both years was more than $5,000 in 1929 but fell below that amount in 1931, with the result that these concerns were counted in the 1929 census but not in the later one. (The minimum value-of-products limit for the census is $5,000.) If it had been practicable to canvass these very small establishments at the 1931 census, the per cent of decrease in number of establishments shown by the report would have been somewhat smaller but the other percentages of decrease would have remained substantially unchanged.

An explanation in regard to the wage-earner figures must also be made. Since the amount of part-time work done was relatively larger in 1931 than in 1929, and since it is necessary for census purposes to give equal weight to full-time and part-time wage-earners in calculating the total (an average of the figures reported for the 12 months of the year), it is obvious that the rate of decrease in the amount of work done or in the number of man-hours worked, was larger than that for the number of wage earners employed. The decrease in wage rates per hour was, therefore, less than that implied by the difference between the rates of decrease in number of wage-earners and in amount of wages paid — 26.2 per cent and 38.2 per cent, respectively.

DUPLICATION IN AGGREGATE COST OF MATERIALS AND VALUE OF PRODUCTS

Because of the fact that the products of some manufacturing establishments are used as materials by others, the aggregate cost of materials, fuel, etc., and the aggregate value of products for all manufacturing industries include considerable amounts of duplication. The net value of all manufactured products, in the form in which they reach ultimate consumers (at f. o. b. factory prices, not retail prices), may be roughly estimated at about two-thirds of the gross value, or approximately $27,500,000,000 for 1931 and $47,000,000,000 for 1929.

RATES OF DECREASE, 1929-1931, FOR INDUSTRY GROUPS

Group	Per cent of decrease in:				
	Number of establishments	Number of wage-earners	Wages	Cost of materials, fuel, etc.	Value of products
1. Food and kindred products	13.4	13.6	18.3	36.0	31.4
2. Textiles and their products	13.3	16.8	28.6	40.8	36.7
3. Forest products	40.0	41.0	52.2	50.6	53.0
4. Paper and allied products	7.8	16.6	25.4	30.6	28.3
5. Printing, publishing, and allied industries	9.5	11.5	15.5	24.2	21.2
6. Chemicals and allied products	9.6	17.6	25.3	35.6	28.9
7. Products of petroleum and coal	1.2	18.4	20.4	39.1	38.0
8. Rubber products	13.7	33.4	45.7	56.3	45.0
9. Leather and its manufactures	13.4	14.3	27.1	41.1	37.6
10. Stone, clay, and glass products	24.7	32.1	42.5	39.9	40.7
11. Iron and steel and their products, not including machinery	10.2	32.1	48.9	53.2	54.1
12. Non-ferrous metals and their products	16.1	33.6	45.8	65.0	59.7
13. Machinery, not including transportation equipment	13.7	37.1	51.8	55.6	52.2
14. Transportation equipment	19.3	35.9	50.3	52.8	52.1
15. Railroad repair shops	5.7	22.4	31.7	45.5	41.7
16. Miscellaneous industries	19.6	28.0	39.5	36.8	32.5

FOREST PRODUCTS AND METAL PRODUCTS DECREASE

The varying rates of decrease by the sixteen groups shown in the preceding table are worthy of particular consideration. The largest rates of decrease in value of products appear for the Forest Products group and for the four groups (Nos. 11 to 14) engaged in the manufacture of semi-finished or finished metal products. These five groups, and only these, show decreases of more than 50 per cent in value of products. The Forest Products group shows also the largest rates of decrease in number of wage-earners (41 per cent) and in wages (52.2 per cent).

DECREASES IN OTHER PRODUCTS

Turning now to those groups in which the decline was relatively small, we find that the lowest rates of decrease in wage-earners, wages, and value of products appear for the printing and publishing and allied industries group. Low rates are recorded also for wage-earners by the food and kindred products and leather and its manufactures groups; for wages by the food and kindred products and products of petroleum and coal groups, and for value of products by the paper and allied products and chemicals and allied products groups.

COMMODITY INCREASES

Of the thousands of commodity items which appear in the census statistics, nearly 100 show increases in value. Outstanding among these commodities are the four listed below. Because of the general lowering of the price level, many commodities which were produced in larger quantities in 1931 than in 1929 nevertheless show decreases in value. Thus if quantity figures were available for all commodities (they are, of course, available for many) it would be found that considerably more than 100 were made in larger number or amounts in 1931 than in 1929.

Commodity	Value (at f. o. b. factory prices) as reported:	
	1929	1931
Granulated and powdered soap	$35,724,861	$40,976,787
Rayon broad goods (except velvets, plushes, and tapestries)	34,738,267	38,400,652
Dentifrices	32,463,698	35,699,132
Toilet paper	25,323,220	25,444,227

MONTHLY FLUCTUATIONS IN WAGE-EARNER EMPLOYMENT

The census not only records the entire amount of manufacturing done during each odd-numbered year as measured both by employment and by production, but also records the month-by-month fluctuations in activity as measured by wage-earner employment. The table below shows these fluctuations in 1931 in comparison with 1929.

WAGE EARNERS, BY MONTHS, 1931 AND 1929

Month	1931	1929
January	6,582,679	8,492,857
February	6,696,622	8,677,823
March	6,797,619	8,835,116
April	6,802,416	8,902,946
May	6,730,138	8,897,938
June	6,573,024	8,912,024
July	6,469,366	8,955,949
August	6,513,459	9,093,922
September	6,566,485	9,188,768
October	6,386,207	9,085,854
November	6,150,626	8,680,712
December	6,007,653	8,341,036
Average for year	6,523,026	8,838,743
Maximum month	Apr. 6,802,416	Sept. 9,188,768
Minimum month	Dec. 6,007,653	Dec. 8,341,036
Per cent minimum of maximum	88.3	90.8

From this table it will be seen that employment in 1931 increased from January through February and March, and slightly from March to its maximum in April; decreased through May and June to July; increased in August and September, and thereafter decreased, reaching its minimum in December. This movement is almost exactly in line with the seasonal trend in a normal year, so far as the periods covered by the upward and downward fluctuations are concerned. In a normal year, however (according to calculations made by the Federal Reserve Board), the minimum occurs in January instead of December, and the upward movement through July and August is greater in extent, so that the maximum is reached in September instead of April.

The biennial census record necessarily ends with December, 1931. (The canvass covering industrial activities in 1933 begins in January, 1934.) An index of employment is, however, compiled monthly by the Bureau of Labor Statistics, Department of Labor, from data collected from more than 18,000 manufacturing establishments which employ approximately half the total number of factory wage earners in the United States. According to this index, factory employment in 1932 increased in February over January, declined from month to month thereafter until July, increased until October, and declined through November and December. The maximum (based on 100 for 1926) was 65.6, in February; the minimum was 55.2, in July, and the average for the year was 60.1.

For 1933 the index shows an increase from January to February, a decrease to March, and uninterrupted increases thereafter until October (the latest month for which data were available at the time this article was written). The minimum, 55.1, appears for March, and the maximum, 74.0, for October. The average for the ten months, 63.4, was 5½ per cent higher than the average for 1932.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

MANUFACTURERS

American Assn. of Creamery Butter Manufacturers, 208 S. LaSalle Street, Chicago, Ill.

American Automobile Assn., Pennsylvania Ave. at 17th Street, Washington, D. C.

American Bottlers of Carbonated Beverages, 726 Bond Bldg., Washington, D. C.

American Brush Manufacturers Assn., 505 Arch St., Philadelphia, Pa.

American Hardware Manufacturers Assn., 342 Madison Ave., New York City.

American Institute of Steel Construction, 200 Madison Ave., New York City.

American Iron and Steel Institute 350 Fifth Ave., New York City.

American Paper and Pulp Assn., 370 Lexington Ave., New York City.

American Petroleum Institute, 250 Park Avenue, New York City.

American Zinc Institute, Inc., 60 E. 42nd Street, New York City.

Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa.

National American Wholesale Lumber Assn., 41 E. 42nd Street, New York City.

National Assn. of Cotton Manufacturers, 80 Federal Street, Boston, Mass.

National Assn. of Ice Industries, 163 W. Washington Street, Chicago, Ill.

National Assn. of Manufacturers of the U. S. of America, 11 W. 42nd St., New York City.

National Assn. of Wool Manufacturers, 80 Federal Street, Boston, Mass.

National Automobile Chamber of Commerce, 366 Madison Ave., New York City.

National Electrical Contractors Assn., 420 Lexington Ave., New York City.

National Electrical Manufacturers Assn., 155 E. 44th Street, New York City.

National Lumber Manufacturers Assn., 1337 Connecticut Ave., Washington, D. C.

National Machine Tool Builders Assn., 1220 Guarantee Title Bldg., Cleveland, O.

National Metal Trades Assn., 126 Liberty Street, New York City.

Rubber Manufacturers Association, 250 W. 57th St., New York City.

Silk Assn. of America, 468 Fourth Ave., New York City.

United States Brewers Assn., 55 W. 42nd St., New York City.

United Typothetae of America, Tower Building, 14th and K Sts., N. W. Washington, D. C.

TRANSPORTATION AND COMMUNICATION

Aerial League of America, 280 Madison Ave., New York City.

American Assn. of Railroad Superintendents, 111 Union Station, St. Louis, Mo.

American Railway Assn., 30 Vesey St., New York City.

American Railway Engineering Assn., 59 E. Van Buren St., Chicago, Ill.

American Road Builders Assn., 938 National Press Building, Washington, D. C.

American Steamship Owners Assn., 11 Broadway, New York City.

Associated Traffic Clubs of America, 917 Majestic Bldg., Indianapolis, Ind.

Cruft Laboratory, Harvard University, Cambridge, Mass.

International Amateur Radio Union, 38 LaSalle Road, West Hartford, Conn.

Maritime Assn. of the Port of New York, 80 Broad St., New York City.

National Aeronautic Assn., 1909 Massachusetts Ave., Washington, D. C.

National Council of American Importers and Traders, Inc., 45 E. 17th St., New York City.

National Industrial Traffic League, 1 La Salle Street Bldg., Chicago, Ill.

National Traffic Service Assn., 105 N. Moore St., New York City.

North American Export Grain Assn., Inc., 2 Broadway, New York City.

Railroad Owners Assn., 502 Chandler Building, Washington, D. C.

Railway Business Assn., 1406 Packard Building, Philadelphia, Pa.

Traffic Vigilance League, Inc., 401 Broadway, New York City.

United States Bureau of Standards, Washington, D. C.

United States Naval Research Laboratory, Washington, D. C.

Western Railways' Committee on Public Relations, Room 2018, 105 W. Adams Street, Chicago, Ill.

PART FIVE

SOCIAL CONDITIONS AND AIMS

DIVISION XIV

IMMIGRATION AND POPULATION

RACE CONDITIONS IN THE UNITED STATES

By Harry H. Laughlin

Carnegie Institution of Washington

POPULATION TRENDS AND THE DEPRESSION

Historical Aspect.—The outstanding features of human history are the facts that within a given continent, country, island, province or community, the numbers of people resident in the particular geographical unit have fluctuated greatly up and down; that, in each such unit, the racial make-up of the population has ranged widely; and that the individual capacities—physical, mental and moral—inherent in the constituent family-stocks have likewise varied substantially. All this constitutes the great theme of history; other factors are mere details.

Countryward Migration.—The financial depression of the last four years in America has reacted in population movement, principally by changing a substantial net immigration to a substantial net emigration, and second, from a substantial internal migration countryward-cityward in all sections of the country to a substantial cityward-countryward migration. The Metropolitan Life Insurance Company unofficially estimates that 2,000,000 people have been added to America's rural population at the expense of the cities during the last two or three years.

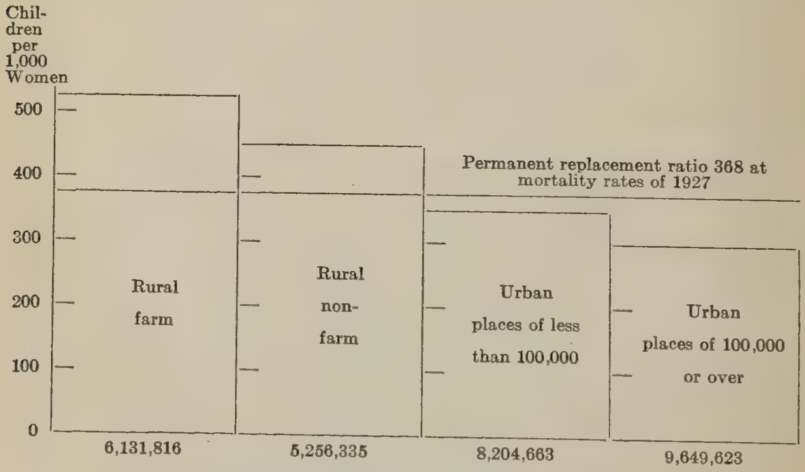
Declining Birth Rate. — Another outstanding current phenomenon is that the declining birth rate continues to decline. Just what effect the depression and "financial ability to have children" have had upon this phenomenon remains to be determined by careful analysis, when good times are restored; then possibly, other factors being constant, the relation between size-of-family and general economic-good-times can be computed, if such a relation exists. Louis J. Dublin says (*Statistical Bulletin* of the Metropolitan Life Insurance Company, June, 1933): "The decline in the birth rate is seen to be a very general phenomenon in which the rural as well as the urban areas are taking part. If certain states with largely rural populations seem to be showing little decline or even an increase, it must be remembered that the provisional figures published between censuses are subject to correction when the effect of internal migration becomes definitely known. While the provisional figures published by the Bureau of Census may require modification in point of detail, the general trend which they exhibit is not open to any doubt whatever. As far back as 1930, the year of the census, the rate of reproduction in our population was barely sufficient to balance our mortality. Now, with the further decline registered, we have undoubtedly passed the balance point. It is only on account of a peculiarity of our age distribution that our birth rate still shows a net excess over the death rate. This is due to a residual effect of past high birth rates, which gives us at the present time a relatively high proportion of persons in the reproductive ages of life, because persons 20 to 50 years old today were born 20 to 50 years ago under the regime of much higher birth rates than we have with us today. In the course of time this peculiarity of our age distribution will disappear, and then we shall feel directly the actual prevailing low fertility rates. Unless a return to greater fertility should ensue in years to come, we shall then have to figure a decreasing population.''

All of which is a factor in race-trends in America, because the different racial stocks in this country are not evenly distributed by city-country, nor by geographic region, nor by occupation. A differential in any of these demographic realms is a differential also in race-change.

DIFFERENTIAL FERTILITY BY RACE, REGION AND OCCUPATION

Frederick Osborn and his colleague, Dr. Frank Lorimer, have recently made a critical census analysis of the population of the United States, in reference to differential fertility by race, geographic region and occupation. Their findings, summarized by Mr. Osborn (*Social Forces,* October, 1933), state:

‘‘Immigrants from foreign countries are often characterized by an exceedingly high birth rate for the first generation in this country, and this was often a cause of apprehension among the older stocks. But it appears that in the second generation the birth rate tends, with a few exceptions, to drop to the level of that of the surrounding population, and in the third generation ethnic differentials are scarcely distinguishable. The fertility of the Negro race also seems to be influenced by its surroundings rather than by any generic difference found between races, except in cases of limited groups. The birth rate of the northern Negro is not nearly as high as the birth rate of his brother in the south. This probably is due to the genetic type of colored person that migrates, and to the environ-



WOMEN 15–44 YEARS OLD IN EACH CLASS.

mental conditions that the migrants are confronted with. Many of the migrating Negroes have chosen to reside in urban districts, which may aid in reducing the birth rate, due to greater pressure of economic conditions and financial stress.''

Mr. Osborn presents the accompanying table showing certain aspects of the urban-rural differential in our human reproduction. The ratio is between children up to 4 years, and women aged 15 to 44.

Osborn continues: ''According to the present mortality, there must be an average birth-rate totalling slightly less than 400 children between the ages of 1 and 5 years to each 1,000 women between 15 and 45 years of age in order to replace the population group. If the nation increases in population, the total birth rate must be higher than the above ratio. The reproductive rate for the nation as a whole is slightly higher than the present necessary replacement ratio. Dividing the country into regional districts, one finds that at present the most fertile human seed-stock is in the rural communities.''

RACE-CHANGE IN NEW ENGLAND

Prof. Ellsworth Huntington of Yale University, who has recently concluded an important research on certain race-conditions in New England, says: ''A recent study of a random sample of the old New England stock during the last three centuries shows how rapidly the racial quality of America is changing. In order to get an unselected and therefore truly representative sample, all the persons bearing the name Huntington in the whole United States were run down. At least 90 per cent of these are descended from an English Puritan who died on his way to America in 1633. This ancestor, however, now supplies only about one part in a thousand of the ancestry of this group, the rest coming from several thousand other families, mainly Puritans. Up to the early Nineteenth century the persons bearing this name intermarried almost exclusively with families of similar Puritan descent. Hence the name Huntington represents a purely random sample of the entire old New England stock. For two centuries this stock increased rapidly, the average family numbering 6.9 children as late as among those where the marriage took place in 1800-1809. The average number of adult survivors who in turn became parents was actually 4.6 among the more prominent families, and nearly as high among the others. Then a very sudden change took place. Within a generation the number of children per family for all classes had dropped nearly 50 per cent while among the people of higher grade it had fallen so low that the survivors who in turn became parents were only one-third as numerous as formerly, and their stock began to decline in numbers. As a consequence 16 average late colonial families of the better type which would have produced one thousand descendants if the old rate of increase had prevailed, actually have today only about 33. Thus the percentage of the type of persons who furnish leadership has declined almost incredibly. At the same time this old family is fast ceasing to be a distinct 'stock'. Those over 70 years of age report only 64 non-English ancestors per hundred persons, even though a single individual may have several such ancestors. Those under 20 years old, on the contrary, report 177 such ancestors. Further results of this study will appear in a book called *After Three Centuries*, by Ellsworth Huntington and Martha Ragland.''

RACE DIFFERENCE IN DEATH RATE FOR WHITES AND NEGROES, 1932-1933

The death rate of the general population in the large cities of the United States for the first five months of 1933 was 3.3 per cent higher than the corresponding time in 1932. For May, 1933 deaths were 10.8 per 1,000 as compared with 11.3 during April and 11.5 in May, 1932. The present economic condition may influence this slight increase in death rate. In 1932 the total death-rate of the major diseases for the colored population living in urban districts continued to be higher than the death rate for whites in the same region; but in general the Negro population made a greater improvement than the whites, thus bringing their health record to a level nearer that of the whites than ever before. The accompanying chart compiled from the 1932 insurance records of the Metropolitan Life Insurance Company shows that fewer colored people than whites per 100,000 persons exposed died of measles, scarlet fever, diphtheria and diarrhea. These favorable developments for Negroes, coupled with the great improvement in the mortality record for respiratory diseases bring the health gain among Negroes to a new high level. The Negroes led the whites in mortality for the other ten major diseases. But it is of interest that whenever improvement in health was shown, almost without exception, it was evident in both color groups.

Cause of Death	Death Rate per 100,000 Persons Exposed	
	White	Colored
Typhoid fever	1.5	3.2
Measles	1.8	.8
Scarlet fever	3.0	1.1
Whooping cough	2.9	3.4
Diphtheria	4.2	1.8
Influenza	16.6	39.3
Meningococcus meningitis	1.2	1.6
Total respiratory diseases	68.0	130.9
Tuberculosis	54.4	196.2
Diabetes mellitus	22.6	26.5
Cerebral hemorrhage	54.4	124.5
Cancer	89.8	101.5
Diarrhea and enteritis	11.3	9.9
Acute nephritis	2.7	9.9
Chronic nephritis	59.7	141.4
Total puerperal state	9.8	16.4

THE MELTING POT IN HAWAII

No section of the United States has been a more active or a more instructive laboratory in race-change than has Hawaii during the last hundred years. In 1832 Hawaii's population was 130,313, practically all Hawaiian stock of excellent polynesian stuff. But for the next forty years the numbers dwindled rapidly, reaching the low point in 1872 with a total population of 56,897. And all the while her native Hawaiian stock dwindled, although henceforth immigrant stocks from the entire circumference of the Pacific Ocean, not by conquest but by the slow infiltration of peaceful immigration, rapidly increased in numbers. The Governor of Hawaii estimates that on June 30, 1932, the Territory's total population was 380,507. The Governor also made an estimate of the number of inhabitants of each racial stock and the number of school children of each racial stock in the Territory on the above named date. A comparison between the per cent of the total population represented by the particular racial stock and the number of children of the same race who attend the public schools of the Territory, constitutes a rough index of fertility by the constituent racial stocks which make up Hawaii's citizenry. This ratio for June 30, 1932 is as follows:

Racial Stock	Percent of Total Population	Percent of Children in School
Hawaiian	5.84	3.82
Caucasian-Hawaiian	4.48	10.48
Asiatic-Hawaiian	3.80	
Portuguese	7.51	7.29
Puerto Rican	1.84	1.65
Spanish	.33	.38
Other Caucasian	11.44	4.30
Chinese	7.16	8.56
Japanese	38.42	54.49
Korean	1.75	2.46
Filipino	17.22	5.29
All Others	.21	1.28
Total	100.00	100.00

EXPANSION OF RACES IN AMERICA

Just as Hawaii has been "a racial melting-pot of great heat for the most diverse and refractory racial elements," also the continental United States as a whole has been a melting-pot. While the latter pot is larger in size, it has not "generated so much heat," and for the most part "the races which were cast into it were by nature substantially more assimilable" with each other.

Under the title the *Conquest of a Continent, or the Expansion of Races in America,* Scribner's has recently published a book by Madison Grant. This new book is essentially a history of America written in terms, not of politics nor of economics nor of war, but basically in terms of the struggle and differential expansion of races. This book might well have been called the "Eugenical History of the New World." It traces critically the racial history of the Western Hemisphere since its discovery by the Old World. The author summarizes his main conclusions by saying: "The fundamental question for this nation, as well as for the World at large, is for the community itself to regulate births by depriving the unfit of the opportunity of leaving behind posterity of their own debased type. Our civilization has mercifully put an end to the cruel, wasteful and indiscriminate destruction of the unfit by Nature, wherefore it is our duty, as exponents of that civilization, to substitute scientific control, that civilization itself may be maintained.* * * It is therefore the duty of all Americans, and such of the immigrant stock as are in sympathy with them, to face the problem boldly and to take all eugenic means to encourage the multiplication of desirable types and abate drastically the increase of the unfit and miscegenation by widely diverse races."

PRESENT RACE-TRENDS

American immigration officers are at present occupied mainly in deporting to their native countries aliens who are here illegally rather than by sorting new candidates for admission to the United States. During the last few years many more aliens have left the country than have entered it. The official estimate of the population of the United States on July 1, 1933 was 125,693,000, based on the last census from actual counting of people, with additions and subtractions due to births, deaths, immigration and emigration. Alien emigration for the year reached a total of 93,074 more than immigration. This is an increase in emigration of 82,810 over the year ended June 30, 1931. Of this number 5,253 were under 21 years; 25,390 under 30 years; 42,495 from 30 to 44 years, and 25,390 over 44 years old. This year's increase in emigration may have been caused by the continued effect of the economic situation of the country. Most of the emigrants leave this country voluntarily, but the Government deports alien criminals, anarchists, insane persons and a number of destitutes each year. Some of the foreigners that have been in this country only a short time, and who find that their business adventures do not have a successful outlook, are taking advantage of the privilege of returning to their homeland at Government expense. By a law of 1917 any alien in this country less than three years who can prove that he is destitute will be returned to his native land without cost to himself. The next group of emigrants are those who have been in the United States, made enough money to retire, and who are returning to their native home to live where economic costs are less and their social standing is higher than in this country. Then there is the poor class, which immigrated to this country during times of prosperity but who now are thrown out of employment; these are migrating back home where economic conditions are evidently much simpler or where they can receive aid from their home governments.

IMMIGRATION AND EMIGRATION

By Daniel W. MacCormack

Commissioner of Immigration and Naturalization, Department of Labor

ADMISSIONS AND DEPARTURES

The fiscal year ended June 30, 1933, marked a further drastic decline in immigration to the United States. Emigration from the United States, while not numerically larger than that of past years, far exceeded the influx. There resulted a net population decrease of 93,074, which is strikingly in contrast with the average annual net increase of the years 1908 to 1930, which was 264,459. The net population decrease of 1932 was 112,786.

During the fiscal year 1933 there were 150,728 aliens, both immigrant and non-immigrant, who entered the United States. In 1932, arrivals totaled 174,871. The decline was at a rate of 13.8 per cent. Immigrants, *i.e.*, aliens contemplating permanent residence, totaled only 23,068 compared with 35,576 for the previous year. Non-immigrants, *i.e.*, aliens entering temporarily or in transit, also returning residents, numbered 127,660 compared with 139,295 in the previous year. Emigrants, *i.e.*, aliens permanently departing, were 80,081, as compared with 103,295 for the previous year. Non-emigrants, *i.e.*, aliens departing with intention to return, also departing temporary visitors, were 163,721, the comparable figure of the previous year being 184,362.

The percentage decline of immigrant admissions was 35.2. Of the year's total, 23,068, there were 8,220 quota immigrants and 14,848 non-quota immigrants. The largest element of the latter class, 7,475, were natives of the non-quota countries of the Western Hemisphere. Next in order of numerical importance were 3,643 wives, and 1,783 children, of United States citizens. Ministers of religion, with their wives and children, numbered 302. Professors of universities and colleges, with their wives and children, numbered only 78. Husbands of United States citizens, accorded non-quota status, were 1,232 in number. In each of these classes, except husbands of United States citizens, there was a decrease by comparison with previous years, a most marked reduction being in the admissions of natives of non-quota countries. This class, which averaged 127,926 in the six years, inclusive, 1925 to 1930, was reduced to 21,139 in 1931, to 9,328 in 1932, and to 7,475 in 1933.

IMMIGRATION SOURCES

During the past fiscal year Europe as a whole sent us 12,383 immigrants, or 53.7 per cent of the total influx. Countries of North, Central and South America contributed 9,925, or 43 pe cent of the total. Asia sent 552, o 2.4 per cent, while Africa, Australasi and other areas altogether contribute only 208, or 0.9 per cent. The si European countries from which mos immigrants came during the fiscal yea 1933 were Italy, 3,477; Germany 1,919; Poland, 1,332; Great Britain 1,079; France, 571; Greece 532. A drastic reduction in immigration from Mexico continued in effect throughout the year. Since 1927, when the high tide of Mexican immigration brought 67,721 persons into the United States from that country, the recession has been progressive. In 1930 the movement was 12,703. In 1931 it fell 74 per cent to 3,333. In 1932 it was further reduced to 2,171, and in 1933 it was 1,936. Canadian immigration likewise has been reduced. In 1930 admissions from that country were 63,502. In 1931 a 64 per cent reduction was shown in the figure 21,687, while in 1932 a further 63 per cent reduction was effected when admissions were limited to 7,927. In 1933 admissions totaled 6,135.

SEX CLASSIFICATION

Immigrant females continue to outnumber immigrant males. This is a development of the past four years. Over a long period of years, or until 1930, the average immigrant influx was 63.4 per cent male and 36.6 per cent female. In the year 1933, however, the proportions were almost exactly reversed, immigrants being 60 per cent female (13,849) and 40 per cent male (9,219).

NON-IMMIGRANT ARRIVALS

The year's record shows a decline in the number of alien residents of the United States returning from temporary visits abroad. This is always the largest element of the non-immigrant class. In 1932 returning residents were 67,057, while in 1933 they numbered only 62,610. A few of the admissions as returning residents (less than 1 per cent) were original entries—infants or immigrants. In other non-immigrant classes there appear declining numbers, as in temporary visitors for business, 13,741 in

1932 and only 11,360 in 1933; temporary visitors for pleasure, 26,724 in 1932 and only 25,539 in 1933; aliens in continuous transit through the United States, 28,678 in 1932 and only 22,693 in 1933. A subdivision of the temporary visitor classes shows England far in the lead, 2,077 coming for business and 4,694 for pleasure. Germany is next with 1,405 coming for business and 2,519 for pleasure. Of the 62,610 returning alien residents, 12,306 were born in Germany, 7,706 in the Irish Free State, 5,364 in England, 5,051 in Italy, 4,429 in Scotland, 2,700 in Japan, 2,211 in Sweden, 1558 in Norway, 1,550 in Poland, 1,177 in China, and 1,175 in Northern Ireland.

EMIGRANT DEPARTURES

Males continue to predominate in statistics of emigration. In 1933 there were 51,852 emigrant males (64.7%) and 28,229 emigrant females (35.3%). Although emigrant departures decrease 22 per cent, the proportions of sex representation remained constant. In the previous year (1932) emigrant males were 66,859, or 64.7 per cent while emigrant females were 36,436, or 35.3 per cent. It is interesting to note that most of those departing had only a few years' residence in the United States. There were 37,879 who had lived here from 1 to 5 years and 23,166 whose residence was from 5 to 10 years. There were 8,337 who had remained from 10 to 15 years and 5,658 who had lived here 15 to 20 years. Those whose residence was from 20 to 25 years numbered 2,588, while those who had remained 25 years or more numbered 2,453. By far the largest racial group departing was the Mexican, numbering 18,977. There were 8,269 English, 6,682 Italian, 6,152 Germans, 5,168 Scotch, 3,958 Scandinavians, 3,812 Irish, 3,204 Spanish, 2,174 Portuguese, 1,706 French, and 1,627 Polish.

Notwithstanding the general trend, which presents a picture of more emigration than immigration, a few countries sent us more persons as immigrants than they received back as emigrants. There were 162 immigrants from Syria and only 147 emigrants to Syria. Albania had 129 immigrants and 105 emigrants. Palestine is credited with only 47 immigrants and 157 emigrants, notwithstanding there were 2,372 immigrant and 384 emigrant Hebrews.

CHINESE

Net decline of alien Chinese residents of the United States during the fiscal year 1933 was drastic. There were 3,516 admissions, of whom 44 were immigrants and 3,472 were non-immigrants. Departures numbered 9,331, of whom 3,500 were emigrants and 5,831 were non-emigrants. The net decrease of population thereby was 5,815. There were, however, 2,785 American citizens of Chinese race admitted during the year, 2,054 of them returning from temporary visits abroad. Only 30 alien Chinese seamen deserted from vessels at American ports during the year, a material decrease from the small number of 76 last year and 111 in the 1931 fiscal period.

DEPORTATION OF ALIENS

Deportees.—During the 1933 fiscal year, 19,865 aliens were arrested and deported as compared with 19,426 in the preceding year and 18,142 for the fiscal year 1931. In addition to those actually deported there were 10,347 subject to deportation who departed voluntarily. Of the total of 19,865 expulsions, 5,904 were deported to Europe, 7,750 to Mexico, 2,642 to China and 2,216 to Canada. European countries receiving most were Italy, 1,043; Germany, 545; England, 517; Spain, 434; Greece, 400; Yugoslavia, 315; and Poland, 300. Most of those deported were found in five American States, *i.e.,* Texas, 4,777; New York, 3,402; Arizona, 3,137; California, 2,350; and Michigan, 1,127. Persons found in the United States without proper visas under the Immigration Act of 1924 made up the largest class of deportees. Their number was 9,099, of whom 3,671 were Mexicans and 1,949 were Chinese. The next largest class is that of persons who remained longer than permitted. Their number was 3,148.

Criminals.—During the year there were deported 2,796 aliens of the criminal and immoral classes, including 800 who were criminals at time of entry, 970 who were convicted of crimes involving moral turpitude after entry, 167 narcotic law violators, 785 of the prostitute and procurer classes and 74 of the anarchistic or communistic class. Expulsions of narcotic law violators increased greatly, the number of 1932 deportations being only 138. Likewise expulsions of the anarchistic or communistic class increased, as only 51 were deported in 1932. Almost half of the criminal and immoral deportees were Mexicans, the total of that race being 1,392. There were also 249 English, 158 Italian, 133 French, 118 Irish, 101 German, and 98 Scotch.

Mental Cases. — Deportation for causes existing prior to entry was effected in 534 cases, the principal cause, insanity, being responsible for 278. In addition, there were 522 aliens deported because mentally or physically defective at time of entry. A total of 1,393 were deported because of illiteracy, 1,010 because of unlawful entry after previous expulsion, and 737 because of entry without proper inspection.

Removal of Distressed Aliens.—During 1933 there were returned to their native lands 1,645 aliens who applied for relief on account of indigence. In the previous year there were 2,637 such persons. Most of the 1,645 (1,192 male and 453 female) were found in the populous States—475 in New York, 348 in Michigan, 214 in Illinois, 151 in Pennsylvania, 85 in Ohio, and 31 in Wisconsin. They were of all nationalities, but the largest number were returned to the British Isles, 345 to Scotland, 304 to England, 81 to the Irish Free State, 56 to Northern Ireland and 56 to Wales. Italy received back 243, Germany 120, Sweden 63. The Netherlands 44, Poland 31, Greece 27, Yugoslavia 26, Belgium 24, Spain 22, and Mexico 18.

CITIZENSHIP AND NATURALIZATION

By Daniel W. MacCormack

Commissioner of Immigration and Naturalization, Department of Labor

CITIZENSHIP

Status by Naturalization. — The fundamental authority for citizenship in the United States rests upon two provisions in the Constitution (*see* The American Year Book, 1928). The status of citizenship conferred is a conditional one both by constitutional and statutory provisions. Presumptive expatriation may ensue on absence from the United States of two years with residence in the state of former allegiance, or five years' absence in any other foreign state. Such presumption may be overcome by presentation of satisfactory evidence of diplomatic or consular officers of the United States under rules of the Department of State. A permanent residence established outside of the United States within five years after acquisition of American citizenship is ground for setting aside the naturalization by judicial procedure. Citizenship terminates upon taking oath of allegiance to any foreign sovereignity whether or not citizenship be acquired under the oath, and likewise upon naturalization elsewhere. These last two acts apply equally to naturalized and native citizens.

MACHINERY OF NATURALIZATION

Limitations.—Naturalization is not open to all races but is limited to those who come within the language of Section 2169 of the Revised Statutes of the United States (U. S. C., t. 8, Sec. 359), by which only aliens who are white persons or of African nativity or descent are included. Within such limitations the various naturalization laws have been enacted by Congress. An exception in the Act of 1918 provides for the naturalization of certain native-born Filipinos who have served honorably in the United States Navy, Marine Corps, or Naval Auxiliary Service.

Judicial Jurisdiction. — Congress has conferred naturalization jurisdiction upon state courts which have a seal, a clerk, and jurisdiction in actions at law or equity or law and equity in which the amount in controversy is unlimited. The Territorial Courts of Alaska and Hawaii, the Supreme Court of the District of Columbia, the United States District Court for Puerto Rico, and the District Court of the Virgin Islands have been similarly empowered by Congress. Citizens of the Philippine Islands are not citizens of the United States but owe allegiance thereto. They are not within the jurisdiction of the naturalization law except those referred to above. Citizenship of the Philippine Islands is conferred under the Philippine naturalization law of 1920 upon certain natives of the Philippines and other insular possessions of the United States, citizens of the United States, and aliens who would be eligible to citizenship of the United States if residing therein.

Immigration and Naturalization Service.—The Service accomplishes the administration of these laws through the field service with branches located in approximately 220 cities throughout the United States, including Alaska, Hawaii, and Puerto Rico, and immigrant inspectors detailed abroad as technical advisers to American consular officers. All are subject to the direction of the Commissioner of Immigration and Naturalization from the administration headquarters in the Department of Labor in Washington.

NATURALIZATION PROBLEMS

Alien Population.—The naturalization problem arises out of the millions of persons of foreign birth who have sought the opportunities that this country offers through its wonderful resources and beneficent laws. The 1930 Census reports 13,366,407 alien-born white men, women and children. Of this number, 7,859,193 were naturalized, 1,246,521 had taken out first papers, 3,787,086 were alien, with 473,607 status unknown.

NATURALIZATION PROCEDURE

Process of Application.—The first step consists in applying to the Immigration and Naturalization Service for the ''certificate of arrival'' to show the date, place and manner of the alien's arrival in the United States. The entry must have been for permanent residence under the immigration law in force at the time of entry in order that a certificate of arrival may be issued to insure naturalization. Those arriving prior to June 26, 1906 are exempt from the certificate of arrival requirements.

Judicial Action.—Upon the issuance of the certificate of arrival, the applicant appears before the appropriate clerk of court and makes formal declaration of intention to become a citizen. Within seven years from the date of such declaration, and after five years of unbroken residence if the declaration of intention should be two years old, the alien may file his petition for admission to citizenship. As a part of the judicial proceeding, naturalization examiners who have been designated by the Judges of the U. S. District Courts to conduct naturalization hearings hold preliminary hearings and make findings and recommendations to the courts. In such cases the witnesses are not required to appear in the courts unless directed by the court or objection to naturalization is offered by the Government examiner. The lawfulness of residence is established in all cases of arrivals from and after July 1, 1924, by reference to the immigration visas which are in the custody of the service at Washington. In all other cases reference is made to the immigration records at the various ports of entry into the United States. There were 26,328 visas received in 1933, making a total of 1,951,037 in the archives of the Service.

Residential Requirements.—The petition for citizenship must be completed by the affidavits of two subscribing witnesses who must be citizens of the United States and who shall testify to all of the period of residence for which they are competent, and also to the good moral character of the petitioner during such period. Five years of residence and good moral character immediately preceding the date of the petition must be established, although more than two witnesses may be used for different periods of residence. At least the last six months of residence must be within the county where the petition is filed. Petitions for citizenship may not be heard by the court until after ninety days have elapsed. Some exceptions to these general provisions are made in favor of certain soldiers, sailors, enlisted men in the Navy and Marine Corps, and in favor of certain American women who were formerly citizens and who desire to resume their citizenship lost through marriage.

Naturalization Fees.—The fees prescribed for naturalization are as follows: Certificate of arrival, $5; declaration of intention, $5; petition for citizenship, $10; certificate of repatriation, $1. In the case of an alien, in whose case there is no record of arrival prior to June 3, 1921, the immigration authorities will make a record of the entry upon satisfactory evidence, for which a fee of $20 is payable to the Commissioner of Immigration and Naturalization. The fee for a certificate of derivative citizenship is $10.

PETITIONS AND GRANTS

Since the Act of June 29, 1906 became operative, up to and including June 30, 1933, there have been 6,212,908 declarations of intention made by candidates for citizenship, with 3,407,353 certificates of citizenship granted upon the 3,818,862 petitions for citizenship filed. During 1933 there were 83,046 declarations of intention made, of which 61,738 were made by men and 21,308 by women of foreign birth. A total of 112,629 petitioned for admission to citizenship, included in which were 78,629 men and 34,000 women. There were 113,363 who received certificates of citizenship, of whom 78,293 were men and 35,070 women.

NATURALIZED PERSONS

(Fiscal Year, 1932-33)

Country		Number
Repatriated Americans		1,922
British Empire:		
Ireland	13,546	
Canada	8,638	
England	4,798	
Scotland	2,813	
Wales	248	
Australia	82	
Others	1,413	
Total, British Empire		31,538
Germany		16,405
Italy		16,331
Poland		12,091
Russia		6,747
Czechoslovakia		3,150
Sweden		3,019
Norway		2,165
Serbs, Croats and Slovenes		2,060
Austria		1,765
Rumania		1,716
Greece		1,704
Lithuania		1,612
Hungary		1,592
Denmark		1,148
Turkey		1,000
Finland		918
Switzerland		893
France		830
Netherlands		747
Portugal		636
Spain		611
Belgium		422
Syria and The Lebanon		397
Latvia		334
Mexico		278
Albania		158
Brazil		123
Bulgaria		121
Others		930
Total		113,363

SPECIAL NATURALIZATION

Women.—On Sept. 22, 1922, Congress passed a law which provided that women might become citizens independently of the action of their husbands. This law repealed the provisions of the law by which the wife became a citizen upon the naturalization of her husband or lost her citizenship upon marriage to an alien. Since that time the records show that there have been 449,800 women who made the declaration of intention to become citizens of the United States, 390,851 who filed petitions for citizenship, and 367,796 who were admitted to citizenship under the general provisions of the Act of 1906, the Act of Sept. 22, 1922, and subsequent legislation heretofore discussed which liberalized the naturalization procedure for women (*see* THE AMERICAN YEAR BOOK, 1931).

Exemptions to World War Veterans.—During the year ended June 30, 1933, there were 2,025 veterans of the American forces of the World War who filed petitions for citizenship under the special provisions of the law of May 25, 1932. The total number of veterans naturalized under such special exemptions is 304,727.

LEGISLATION

Women of Hawaii.—On July 2, 1932, the Congress extended citizenship rights to a limited number of women born in Hawaii prior to June 14, 1900, who were residing in the United States on the date of the enactment of this law. This enabled certain women to acquire American citizenship lost by marriage.

POPULATION STATISTICS

By Leon E. Truesdell

Chief Statistician for Population, U. S. Bureau of the Census

TOTAL POPULATION

Population Growth. — The population of Continental United States on April 1, 1930, the date of the Fifteenth Census, was 122,775,046, as compared with 105,710,620 on Jan. 1, 1920, the date of the last preceding census. In 1790, when the First Census was taken, the population was 3,929,214. (*See* American Year Book, 1932, p. 523.)

Intercensal Estimates.—The population of the United States is estimated for each year between one census and the next on the basis of registered births and deaths and net immigration or emigration. Estimates have also been made for States, counties, and the larger cities, but under present conditions, by reason of extensive and unusual migration from urban to rural areas, it is becoming increasingly difficult to make estimates for cities or counties which are at all satisfactory. The estimated population of the United States as of July 1, 1933, is 125,693,000.

POPULATION CLASSIFICATIONS

Urban.—Of the total population returned in the 1930 Census, 56.2 per cent were living in urban territory, which includes all cities and other incorporated places having 2,500 inhabitants or more, together with a few densely settled townships classified as urban under a special rule. The percentage of the population urban in 1920 was 51.4; in 1910, 45.8; in 1900, 40.0; in 1890, 35.4; and in 1880, 28.6.

Rural.—The rural population, that is, the population living outside urban territory as defined above, is divided into two classes, the rural-nonfarm or village population, and the rural-farm population, which includes all persons living on farms in rural territory, without regard to occupation. These various classifications are summarized in the following table.

URBAN AND RURAL POPULATION OF THE UNITED STATES

Area	1930	1920
Total	122,775,046	105,710,620
Urban	68,954,823	54,304,603
Cities of 100,000 or more	36,325,736	27,429,326
Of 25,000 to 100,000	12,917,141	10,340,788
Of 2,500 to 25,000	19,711,946	16,534,489
Rural	53,820,223	51,406,017
Incorporated places of 1,000 to 2,500	4,820,707	8,963,125
Of less than 1,000	4,362,746	
Other rural territory	44,636,770	42,442,892
Rural-farm	30,157,513	31,358,640
Rural-non-farm	23,662,710	20,047,377

Color and Nativity. — The total population of the United States in 1930 comprised 108,864,207 white persons, 11,891,143 Negroes, 1,422,533 Mexicans, 332,397 Indians, 74,954 Chinese, 138,834 Japanese, 45,208 Filipinos, and 5,770 persons of other races. Of the white population, 70,136,614 were natives of native parentage; 25,361,186 were natives of foreign or mixed parentage, and 13,-

366,407 were foreign born. (For a detailed statement with comparative figures for 1920, *see* The American Year Book, 1932, page 524.)

FOREIGN WHITE STOCK: 1930

Country of Origin	Foreign-born White	Native White of Foreign or Mixed Parentage
All countries	13,366,407	25,361,186
England	808,672	1,713,589
Scotland	354,323	545,268
Wales	60,205	176,462
Northern Ireland	178,832	517,167
Irish Free State	744,810	2,341,712
Norway	347,852	752,246
Sweden	595,250	967,453
Denmark	179,474	349,668
Netherlands	133,133	280,833
Switzerland	113,010	260,993
France	135,232	336,373
Germany	1,608,814	5,264,289
Poland	1,268,583	2,073,615
Czechoslovakia	491,638	890,441
Austria	370,914	583,734
Hungary	274,450	316,318
Yugoslavia	211,416	257,979
Russia	1,153,624	1,516,214
Lithuania	193,606	245,589
Finland	142,478	178,058
Rumania	146,393	147,060
Greece	174,526	129,225
Italy	1,790,424	2,756,453
Other Europe	265,226	334,771
Asia	157,580	152,347
Canada—French	370,852	735,307
Canada—Other	907,569	1,323,617
Other America	116,649	117,445
All other countries	70,872	96,960

Foreign White Stock.—The foreign white stock is made up of two classes: (a) the foreign-born white, and (b) the native white of foreign or mixed parentage. The total foreign white stock as returned in 1930 numbered 38,727,593, comprising 13,366,407 foreign-born white persons and 25,361,186 persons of foreign or mixed parentage, that is, persons having one or both parents foreign born. In the above table these groups are presented by country of origin. The foreign-born white are shown by country of birth; natives with both parents foreign are classified according to country of birth of father; and natives with one parent foreign and one native, according to country of birth of the foreign parent. (For further information with respect to the foreign born, including citizenship, year of immigration, mother tongue, and ability to speak English, *see* The American Year Book, 1932, pp. 524, 525.)

Age.—The age classification in the Census returns is based on age at last birthday, that is, age in completed years. In The American Year Book, 1932 (page 526) is a detailed table showing the age distribution of the population by 5-year periods, with single years for children under five. In the following table are presented certain significant cumulative age groups:

CUMULATIVE AGE GROUPS: 1930

(Person of Unknown Age Omitted)

Age (years)	Total Number	Male	Female
All ages	122,681,024	62,085,264	60,595,760
Under 1	2,190,791	1,112,171	1,078,620
Under 5	11,444,390	5,806,174	5,638,216
Under 10	24,051,999	12,187,282	11,864,717
Under 15	36,056,876	18,256,059	17,800,817
Under 18	43,015,712	21,749,777	21,265,935
Under 20	47,608,991	24,013,884	23,595,107
Under 21	49,831,422	25,080,323	24,751,099
21 & over	72,849,602	37,004,941	35,844,661
25 & over	64,201,655	32,734,565	31,467,090
35 & over	45,247,626	23,312,599	21,935.027
45 & over	28,048,786	14,496,280	13,552,506
55 & over	15,030,703	7,692,711	7,337,992
65 & over	6,633,805	3,325,211	3,308,594
75 & over	1,913,196	915,752	997,444
85 & over	272,130	117,010	155,120

Illiteracy.—The Census Bureau defines as illiterate any person 10 years of age and over who is not able to read and write, either in English or in some other language. In 1930, 4.3 per cent of the population 10 years old and over was returned as illiterate. This percentage may be compared with 6.0 in 1920, 7.7 in 1910, 10.7 in 1900, 13.3 in 1890, and 17.0 in 1880.

There is a very close connection between illiteracy and age, resulting from the rapid improvement and extension of school facilities during recent decades. Thus, according to the 1930 census, only 1.2 per cent of the population 10 to 14 years old was illiterate, as compared with 3.3 per cent of the population 25 to 34 years old, 6.6 per cent of those 45 to 54 years old, and 9.7 per cent of those 65 years old and over. Corresponding percentages for the native white population of native parentage taken alone are as follows: 0.6 for age 10 to 14; 1.4 for age 25 to 34; 2.6 for age 45 to 54, and 5.2 for age 65 and over.

ILLITERACY BY AGE: 1930

Age (years)	Total Population	Illiterate	
		Number	Per Cent
10 and over	98,723,047	4,283,753	4.3
10 to 14	12,004,877	140,440	1.2
15 to 19	11,552,115	221,942	1.9
20 to 24	10,870,378	294,360	2.7
25 to 34	18,954,029	618,266	3.3
35 to 44	17,198,840	887,955	5.2
45 to 54	13,018,083	864,433	6.6
55 to 64	8,396,898	606,811	7.2
65 and over	6,633,805	642,966	9.7

The percentages of illiteracy for the principal color and nativity classes of the population in 1930 were as follows: Total white, 2.7; native white, 1.5; foreign-born white, 9.9; Negro, 16.3; Mexican, 27.5; Indian, 25.7; Chinese, 20.4; Japanese, 9.2; and Filipino, 6.6.

School Attendance.—The statistics of school attendance are based on a count of all persons who had attended a school or college of any kind at any time between Sept. 1, 1929 and April 1, 1930. Of the whole number of persons 7 to 13 years of age, 95.3 per cent were returned as attending school in 1930, as compared with 90.6 per cent in 1920; of those 14 years old, 92.9 per cent were returned as attending school in 1930, as compared with 86.3 per cent in 1920; of those 15 years old, 84.7 per cent in 1930 and 72.9 per cent in 1920; of those 16 and 17 years old, 57.3 per cent in 1930 and 42.9 per cent in 1920; and of those 18 to 20 years old, 21.4 per cent in 1930 and 14.8 per cent in 1920. These figures indicate an increase in school attendance, particularly among young people of high school and college age. In addition, the number of persons 21 years old and over reported as attending school in 1930 amounted to 1,034,782, as compared with 344,789 in 1920.

School Attendance and Gainful Occupation.—In order to show the number of young persons past the compulsory school attendance age who are

SCHOOL ATTENDANCE AND GAINFUL OCCUPATION: 1930

Sex and Class	10–14 Years	15 Years	16 Years	17 Years	18–20 Years	21–24 Years
Male						
Total	6,068,777	1,154,648	1,181,920	1,157,150	3,330,546	4,270,376
Gainfully occupied	273,099	187,643	386,511	577,983	2,481,534	3,917,739
Attending school	205,707	87,916	104,455	92,808	172,771	114,990
Not attending school	67,392	99,727	282,056	485,175	2,308,763	3,802,749
Not gainfully occupied	5,795,678	967,005	795,409	579,167	849,012	352,637
Attending school	5,626,400	891,154	673,130	451,931	572,369	189,024
Not attending school	169,278	75,851	122,279	127,236	276,643	163,613
Total attending school	5,832,107	979,070	777,585	544,739	745,140	304,014
Female						
Total	5,936,100	1,141,051	1,185,395	1,138,672	3,485,164	4,377,571
Gainfully occupied	119,889	86,487	201,306	313,041	1,460,875	1,829,118
Attending school	91,893	37,508	48,298	44,440	117,717	83,949
Married	347	1,418	5,271	12,366	143,723	399,171
Not gainfully occupied	5,816,211	1,054,564	984,089	825,631	2,024,289	2,548,453
Not married	5,812,317	1,041,184	937,968	724,783	1,178,854	526,554
Attending school	5,626,476	925,288	740,410	506,436	581,882	108,804
Not attending school	185,841	115,896	197,558	218,347	596,972	417,750
Married	3,894	13,380	46,121	100,848	845,435	2,021,899
Attending school	1,014	1,687	3,546	4,403	12,045	13,084
Not attending school	2,880	11,693	42,575	96,445	833,390	2,008,815
Total attending school	5,719,383	964,483	792,254	555,279	711,644	205,837

neither attending school nor engaged in a gainful occupation, a special tabulation of school attendance in combination with occupational status was made for persons 10 to 24 years of age. This tabulation shows, for example, that out of a total of 1,106,404 males 19 years old, as returned in the 1930 census, 841,379 were gainfully occupied, including 55,576 who were also attending school; 174,323 were attending school and not gainfully occupied; and 90,702 were neither gainfully occupied nor attending school. The major part of this last group are young men seeking their first jobs and represent one element in the unemployment problem. The results of this special tabulation are presented in considerable detail in the table on page 579.

Marital Condition.—The male population 15 years old and over in 1930 was classified by marital condition as follows: Single, 34.1 per cent; married, 60 per cent; widowed, 4.6 per cent; divorced, 1.1 per cent. For females, the corresponding percentages are as follows: Single, 26.4 per cent; married, 61.1 per cent; widowed, 11.1 per cent; divorced, 1.3 per cent. The numbers on which these percentages are based are given in THE AMERICAN YEAR BOOK for 1931, (page 528). From the tabulation of marital condition by age it is possible to compute approximately the median age at first marriage, since this median will coincide very nearly with the age at which 50 per cent of the persons enumerated are or have been married, and 50 per cent remain single. These median ages are presented for 1930, 1920, and 1910, in the following table:

MEDIAN AGE AT FIRST MARRIAGE: 1910 TO 1930

CENSUS YEAR COLOR, AND NATIVITY	Male	Female
1930, total	25.6	22.4
Native white	25.6	22.6
Foreign-born white	27.6	23.4
Negro	23.3	20.5
1920, total	26.0	22.4
1910, total	26.6	22.7

Gainful Workers. — Persons 10 years old and over who usually work at a gainful occupation, even though temporarily unemployed at the time of the Census, are classified as gainful workers. The whole number of gainful workers returned in 1930 was 48,829,920. This number included both persons working for wages or salaries and persons conducting business on their own account, such as farmers and small merchants. Of the total male population 10 years old and over, 76.2 per cent were returned as gainful workers, and of the female population, 22 per cent. Significant changes took place between 1920 and 1930 in the number and percentage of children under 18 years of age who were gainfully employed, as indicated in the table below, which gives the percentage of gainful workers in each age group for 1930 and 1920. Special significance attaches also to the percentages shown as following a gainful occupation in the ages past middle life.

PERCENTAGE OF THE POPULATION GAINFULLY EMPLOYED, BY AGE: 1930 AND 1920

AGE (years)	MALE		FEMALE	
	1930	1920	1930	1920
10 to 13	3.3	6.0	1.5	2.8
14	9.2	16.9	4.0	8.2
15	16.3	30.4	7.6	15.4
16	32.7	51.3	17.0	27.9
17	49.9	65.0	27.5	35.7
18 to 19	70.7	78.3	40.5	42.3
20 to 24	89.9	91.0	42.4	38.1
25 to 44	97.5	97.2	25.4	22.4
25 to 34	97.3	....	27.8	....
35 to 44	97.6	....	22.6	....
45 to 64	94.1	93.8	18.7	17.1
45 to 54	96.5	....	20.4	....
55 to 64	90.2	....	16.1	....
65 and over	58.3	60.1	8.0	8.0

The percentages shown in the table indicate that the age of 40 may not be, as is often stated, the "deadline" for men seeking employment, since the proportion gainfully occupied in 1930 was almost as high for men 40 to 44 years old (97.6) as for men 35 to 39 (97.7). Further, of those 45 to 49 years old, 97.2 per cent were occupied, and of those 50 to 54 years old, 95.7 per cent. In fact, up to age

60 the dimunition in this percentage is not much more than what would result in the increasing number of cases of actual physical disability. The whole number of gainful workers returned in 1930 have been classified into 12 social-economic groups, as follows:

GAINFUL WORKERS CLASSIFIED INTO SOCIAL-ECONOMIC GROUPS: 1930

Group	Male		Female	
	Number	Per Cent	Number	Per Cent
All occupations	38,077,804	100.0	10,752,116	100.0
1. Professional persons	1,497,934	3.9	1 447,863	13.5
2. Proprietors, managers, and officials	9,159,896	24.1	505,644	4.7
2-a. Farmers (owners and tenants)	5,749,367	15.1	262,645	2.4
2-b. Wholesale and retail dealers	1,675,193	4.4	111,854	1.0
2-c. Other proprietors, managers, and officials	1,735,336	4.6	131,145	1.2
3. Clerks and kindred workers	4,877,235	12.8	3,072,220	28.6
4. Skilled workers and foremen	6,201,542	16.3	81,145	0.8
5. Semi-skilled workers	5,448,158	14.3	2,529,414	23.5
5-a. Semi-skilled workers in manufacturing	2,881,022	7.6	1,676,971	15.6
5-b. Other semi-skilled workers	2,567,136	6.7	852,443	7.9
6. Unskilled workers	10,893,039	28.6	3,115,830	29.0
6-a. Farm laborers	3,746,433	9.8	646,331	6.0
6-b. Factory and building construction laborers	3,248,622	8.5	125,521	1.2
6-c. Other laborers	2,871,744	7.5	31,321	0.3
6-d. Servant classes	1,026,240	2.7	2,312,657	21.5

Unemployment.—In the 1930 Census of Unemployment, 2,429,062 gainful workers were returned in Class A, that is, as out of a job, able to work and looking for a job, and 758,585 in Class B, that is, as having a job but on layoff without pay. These figures exclude those sick or voluntarily idle. The gainful workers out of a job thus constituted 5 per cent of the whole number of gainful workers. A special census of Unemployment was taken in January, 1931, in 19 cities. The number of jobless persons returned in this Census was 1,930,437, which was equivalent to 20.4 per cent of the gainful workers in these cities in 1930. On the basis of these figures, supplemented by other data, it was estimated that the whole number of unemployed in January, 1931, was about 6,000,000.

FAMILY STATISTICS

Number of Families.—The term "family," as it is used in the tabulations of the 1930 Census, is limited in the main to what might be termed private families, excluding the institutions, hotels, boarding houses, etc., which had been counted as families in prior censuses. The family may, therefore, be defined as a group of persons related either by blood or by marriage or adoption who live together as one household, usually sharing the same table. The total number of such families (including 2,357,463 1-person families) was 29,904,663. The number of instutions, hotels, etc., excluded from the count of private families, was 75,178, representing a population of 2,962,861. The population per private family in 1930 was 4.01; the population per family, including quasi-family groups (for the sake of comparability with earlier censuses) was 4.10, as compared with 4.34 in 1920; 4.54 in 1910; 4.69 in 1900; and 4.93 in 1890. There has thus been a continuous decline in the population per family amounting to about two-tenths of an individual per decade.

Tenure of Home.—Since a home is defined as the living accommodations occupied by a family, the number of homes is always the same as the number of families. In the classification by tenure, a home is counted as owned if it is owned wholly or in part by any related member of the family. Of all homes returned in the 1930 census, 14,002,074, or 46.8 per cent, were owned, and 15,319,817, or 51.2 per cent, were rented, while for 1.9 per cent the tenure was not reported. Home tenure data are presented for the last three censuses in THE AMERICAN YEAR BOOK for 1932 (page 529).

HOMES BY VALUE OR MONTHLY RENTAL: 1930

VALUE OR RENTAL	Number	Per Cent
Owned non-farm homes...	10,503,386	100.0
Value under $1,000.....	794,724	7.6
$1,000 to $1,499......	570,047	5.4
1,500 to 1,999......	531,277	5.1
2,000 to 2,999......	1,167,325	11.1
3,000 to 4,999......	2,343,769	22.3
5,000 to 7,499......	2,297,029	21.9
7,500 to 9,999......	989,468	9.4
10,000 to 14,999......	906,557	8.6
15,000 to 19,999......	339,535	3.2
20,000 and over......	354,337	3.4
Not reported.........	209,318	2.0
Rented non-farm homes...	12,351,549	100.0
Rental under $10.......	1,563,952	12.7
$10 to $14...........	1,330,927	10.8
15 to 19...........	1,302,387	10.5
20 to 29...........	2,545,208	20.6
30 to 49...........	3,191,435	25.8
50 to 74...........	1,503,401	12.2
75 to 99...........	343,071	2.8
100 to 149...........	163,292	1.3
150 to 199...........	46,297	0.4
200 and over.........	45,750	0.4
Not reported.........	315,829	2.6
Farm homes.............	6,288,648	100.0
Value under $500.......	2,093,996	33.3
$500 to $999........	1,238,545	19.7
1,000 to 1,499........	787,885	12.5
1,500 to 1,999........	496,304	7.9
2,000 to 2,999........	642,014	10.2
3,000 to 4,999........	425,667	6.8
5,000 to 7,499........	134,073	2.1
7,500 to 9,999........	23,456	0.4
10,000 and over.......	24,506	0.4
Not reported.........	422,202	6.7

Value or Rental of Homes.—The census enumerator was instructed to report for each non-farm family the approximate current market value of the home if owned, or the monthly rental paid if rented; and for each farm family the value of the dwe ling occupied. The farm values ar not strictly comparable with th non-farm values, since the latter in clude the value of the land o which the home stands, while th farm home figures represent th value of the building alone. Thes data are summarized in the abov table:

Median Value or Rental.—Th median value is the value of tha home which would stand in the middle of the series if all the home were arranged according to value beginning with the lowest and ending with the highest. The median value of all owned non-farm home in the United States in 1930 wa $4,778. Of the non-farm home owned by native white families the median value was $4,766; by foreign born white families, $5,576, and by Negro families, $1,341. The median rental for all rented non-farm home was $27.15; for rented homes occupied by native white families $27.92; by foreign-born white families, $33, and by Negro families, $13.04. The median value of all farm (owners and tenants) homes was less than $1,000.

Families Having Children.—Of the whole number of families, 58.8 per cent reported that they had no children under 10 years of age, and 38.8 per cent that they had no children under 21 years of age. The classification of families according to the number of children under 10 is summarized in the following table:

FAMILIES CLASSIFIED ACCORDING TO NUMBER OF CHILDREN UNDER 10 YEARS OLD: 1930

NUMBER OF CHILDREN	Number of Families	Per Cent
All families..........	29,904,663	100.0
Families having:		
No children under 10...	17,587,354	58.8
1 child under 10........	5,745,158	19.2
2 children under 10.....	3,525,307	11.8
3 children under 10.....	1,787,690	6.0
4 children under 10.....	851,974	2.8
5 children under 10.....	311,074	1.0
6 or more	96,106	0.3

MARRIAGE AND DIVORCE

Data. — Marriage and divorce figures have been compiled for various periods beginning with 1867 and have been published annually since 1922. The statistics are summarized in the following table:

MARRIAGES AND DIVORCES: 1922 TO 1932

YEAR	Population of the United States (estimated as of July 1)	MARRIAGES		DIVORCES		
		Number	Per 1,000 of Population	Number	Per 1,000 of Population	Per 100 Marriages Performed
1932.....	124,822,000	981,903	7.87	160,338	1.28	16.3
1931.....	124,070,000	1,060,914	8.55	183,664	1.48	17.3
1930.....	123,191,000	1,126,856	9.15	191,591	1.56	17.0
1929.....	121,526,429	1.232,559	10.14	201,468	1.66	16.3
1928.....	119,861,607	1,182,497	9.87	195,939	1.63	16.6
1927.....	118,196,785	1,201,053	10.16	192,037	1.62	16.0
1926.....	116,531,963	1,202,574	10.32	180,853	1.55	15.0
1925.....	114,867,141	1,188,334	10.35	175,449	1.53	14.8
1924.....	113,202,319	1,184,574	10.46	170,952	1.51	14.4
1923.....	111,537,497	1,229,784	11.03	165,096	1.48	13.4
1922.....	109,872,675	1,134,151	10.32	148,815	1.35	13.1

Classification of Divorces.—The divorces as reported are classified according to cause, party to whom granted, etc. Of the 159,710 divorces granted in 1932 for which detailed information was received, 42,335 were granted to the husband, and 117,375 to the wife. Classified according to cause, 68,246 were granted for cruelty; 44,605 for desertion; 11,605 for adultery; 6,620 for neglect to provide; 2,178 for drunkenness; and 26,456 for other causes and combinations of causes. Of the whole number of divorces, 137,376 were reported as uncontested. Cases where the parties had been married less than five years formed 34.5 per cent of all divorces, and another 28.1 per cent was made up of cases where the parties had been married from 5 to 9 years. In only 61,015 cases, or 38.2 per cent of the cases, was it reported that children were affected by the divorce.

Annulments. — In addition to the divorces listed above, there were reported in 1932, 3,903 cases of annulment of marriage, as compared with 4,339 in 1931. More than half of the annulments in both years were reported from two States, New York and California.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN COLONIZATION SOCIETY, 516 Colorado Bldg., Washington, D. C.

COMMITTEE OF ONE THOUSAND, 25 E. 26th St., New York City.

NATURALIZATION AID LEAGUE, 175 E. Broadway, New York City.

NORTH AMERICAN CIVIC LEAGUE FOR IMMIGRANTS, 287 Fourth Ave., New York City.

SCRIPPS FOUNDATION FOR RESEARCH IN POPULATION PROBLEMS, Miami University, Oxford, O.

RACES

AMERICAN ETHNOLOGICAL SOCIETY, American Museum of Natural History, New York City.

AMERICAN JEWISH COMMITTEE, 171 Madison Ave., New York City.

XIV. IMMIGRATION AND POPULATION

Ancient Order of Hibernians, 937 W. 54th Place, Chicago, Ill.
Bavarian National Assn. of N. A., 758 Broadway, Buffalo, N. Y.
Centro Hispano-Americano, 353 W. 17th St., New York City.
Centro Vasco Americano Society, 48½ Cherry St., New York City.
English-Speaking Union of the U. S., 19 W. 44th St., New York City.
Federation De L'Alliance Francaise, 32 Nassau St., New York City.
Federation of Polish Jews In America, 225 W. 34th Street, New York City.
Foreign Language Publishers' Assn. of the U. S., Inc., 110 E. 42nd St., New York City.
Hebrew Sheltering and Immigrant Aid Society of America, 425 Lafayette St., New York City.
Holland Society of N. Y., 90 West Street, New York City.
Huguenot Society of America, 2 W. 45th St., New York City.
Hungarian Society of N. Y., 1440 Broadway, New York City.
Indian Rights Assn., 995 Drexel Building, Philadelphia, Pa.
Japanese Assn., Inc., 1819 Broadway, New York City.
Jewish Council of Greater N. Y., 103 Park Ave., New York City.
Jewish National Workers' Alliance of America, 404 Fourth Ave. New York City.
Lake Mohonk Indian Conference Mohonk Lake, N. Y.
Lithuanian Alliance of America 307 W. 30th St., New York City.
National Assn. for Advancement of Colored People, 69 Fifth Ave. New York City.
Netherland American Foundation 274 Madison Ave., New York City.
Ordine Fieli D'Italia in America, 225 Lafayette St., New York City.
Polish Federation of New York City, Inc., 705 Courtlandt Ave., New York City.
Polish National Alliance, 735 N. Water Street, Milwaukee, Wis.
Russian National Society, 5 Columbus Circle, New York City.
Sons of Italy, 231 E. 14th St., New York City.
United Roumanian Jews of America, Inc., 799 Broadway, New York City.
Young Judea, Inc., 111 Fifth Ave., New York City.
Young Men's Hebrew Assn., 71 W. 47th St., New York City.
Young Women's Hebrew Association, 71 W. 47th Street, New York City.
Zionist Organization of America, 111 Fifth Ave., New York City.

DIVISION XV

SOCIAL PROBLEMS AND CONDITIONS

CRIME CONDITIONS AND TREATMENT

By Bennet Mead

Statistician, U. S. Bureau of Prisons, Department of Justice

POLICE STATISTICS

Growth of Area.—In the United States, the collection of crime statistics on a national basis has been carried on since January, 1930 when there reported 399 cities, with about 20,000,000 population. The total number of reporting units increased to 1,781 in September, 1933, including rural areas and villages as well as cities. Reports for all or part of the first nine months of 1933 were furnished to the U. S. Department of Justice by 1,638 cities, having a total population of 62,041,342.

Value of Data.—In spite of the efforts for improvement made by the Federal Government, various state agencies, and the reporting police departments, some errors undoubtedly remain in the returns. None the less, these police statistics are of great value to all agencies concerned with crime and its treatment.

Major Offenses: 1931, 1932 and 1933. — The table (p. 586) shows changes in the incidence of certain major offenses for the past three years. There were decided increases from 1931 to 1933 in the daily average numbers of offenses for burglary and larceny, presumably due largely to the pressure of economic hardships resulting from the economic collapse of the past four years. Likewise, the decreased use of automobiles resulting from the depression may explain the decreases both of auto thefts and in homicides by negligence, which are mostly the sequels of automobile accidents. The last column of the table shows the incidence of the major offenses relative to population for 1933.

OUTSTANDING CRIME DEVELOPMENTS

New Trends. — During the past year many criminals, especially members of organized gangs, appear to have shifted from such activities as robbery, burglary and bootlegging to kidnapping and extortion. There has been a continued increase in ''business'' racketeering of types which have become familiar in recent years. Organized racketeers have become active in cities where they were formerly not in evidence. The increase in kidnapping has probably been to some extent the indirect outcome of the drastic changes in the Federal Government's policies with reference to liquor. Criminals formerly engaged in liquor rackets are shifting from activities which are becoming less profitable to others which promise larger returns. The depression has also been an important factor in these developments by reducing opportunities for profit in bank and pay-roll robberies, burglary, etc. Protective measures may also have been a contributory factor.

Federal Action. — These developments have stimulated a widespread public demand for more efficient law enforcement, and especially for the supplementing by the Federal Government of the work of non-Federal agencies. In response to such demands, Congress enacted in the summer of 1932 the so-called "Federal kidnapping law" and the Extortio Act. During 1933, these laws hav enabled the Federal Government to ac effectively in a number of importan kidnapping and extortion cases.

MAJOR OFFENSES KNOWN TO THE POLICE: 1931, 1932 AND 1933*
(January to September inclusive)

Offense	Daily average number for 70 cities over 100,000 population			Ratio per 100,000 population for 1,274 cities
	1931	1932	1933	1933
Offenses primarily against property:				
Robbery	50.3	46.6	46.5	75.3
Burglary—breaking and entering	183.6	200.5	212.6	282.8
Larcency—theft	401.9	405.8	431.5	551.7
Auto theft	235.8	197.2	189.9	236.2
Offenses primarily against persons:				
Criminal homicide:				
Murder and non-negligent manslaughter	3.9	4.0	4.3	5.3
Manslaughter by negligence	3.8	2.9	3.4	3.2
Rape	3.3	3.5	3.6	4.7
Assault (aggravated)	27.2	24.0	30.1	38.7

* Based on "Uniform Crime Reports," issued by U. S. Bureau of Investigation, *Third Quarterly Bulletin*, (1933, pages 4 and 6.) Data on daily averages cover cities having a total population of 20,294,502. Population ratios for 1933 cover cities having a total population of 49,204,711.

HOMICIDE

It is estimated that there were somewhat over 11,000 officially recorded homicides in the entire United States during the year 1932. This estimate is based on census mortality statistics for the death registration area which in 1932 covered all the states except Texas and included over 96 per cent of the population of the country, (Texas will be included beginning with 1933). The homicide death rate in 1932 was 9.2 per 100,000 population, as compared with rates of 9.3 for 1931, 9 for 1930, and 8.4 for 1929. These rates are more representative of conditions in all parts of the country than the police statistics of criminal homicide, which do not cover the rural areas or small towns to the same extent as the larger urban areas. But the census mortality figures include "justifiable" homicides, as well as criminal homicides. Hence they should not be used to represent the number of criminal homicides.

STATISTICS OF PRISONERS

Annual Census.—A combined two-year Census Bureau report entitled "Prisoners in State and Federal Prisons and Reformatories, 1931 and 1932," is in preparation at this writing, and should be issued in 1934. Comparable census data on prisoners are now available for seven consecutive years, beginning with 1926. It is estimated from figures in these reports that the total population of all the state and Federal prisons and reformatories was over 150,000 on Jan. 1, 1934. It is also estimated that the number of prisoners received from the courts by these institutions was about 72,000 during 1932. The latest census data on prisoners indicate a decided slackening in the growth of the prison population of state and Federal institutions, which had been rapidly expanding for many years. The population of the Federal institutions has, in fact, begun to decline, and by July 1, 1934, will probably drop to a level lower than any for several years.

Decennial Census. — For 1933, the Census Bureau has collected statistics not only for the state and Federal institutions covered by the annual census, but also for prisoners in jails, workhouses, and other local institution. It is expected that this information will be reasonably comparable with the jail statistics in the previous decennial census report, "Prisoners, 1932." In addition, statistics have been collected covering persons under parole supervision and those granted executive clemency, or pardon and commutation.

CRIMINAL COURT STATISTICS

Census Projects.—The U. S. Census Bureau has collected criminal trial court statistics for 1932, covering 16 states and the District of Columbia. This work has been done according to the methods developed by the Institute of Law of The Johns Hopkins University. The Institute had collected and published data, under these plans, for two states, Ohio and Maryland, for 1930, and for a total of six states for 1931. These statistics are filling up in some degree one of the worst gaps in our criminal statistics. It is to be hoped that the Census Bureau will steadily extend the present statistics to cover the entire country, and that the scope of the statistics may be expanded so as to afford a real picture of the work of the criminal courts, including the so-called "minor" courts.

TREATMENT OF OFFENDERS

Principal Methods. — Three chief types of treatment are now utilized for the reformation or rehabilitation of offenders: (1) Institutional treatment; (2) Parole; and (3) Probation. In the use of institutional treatment, or imprisonment, there have been during recent years some important new developments in the adoption of more scientific and effective methods. Parole, or the supervision in the community of released prisoners, is coming to be recognized as essential to the effective readjustment to community life of most offenders who have been subjected to institutional treatment. An important development of the past year was the adoption by the American Parole Association of a Statement of Principles which will serve as a basis for the standardizing of policies and procedures in parole work. This statement was approved at the annual meeting of the Parole Association in October. Probation, or the supervision of convicted offenders in the community, as a substitute for imprisonment, has assumed increasing importance in recent years. Attention is called to the separate articles on institutional treatment and probation which appear elsewhere in this volume.

Juvenile Court Statistics. — Space does not permit an exhaustive survey of developments in the field of juvenile delinquency. Beginning with 1926, the United States Children's Bureau has compiled annual detailed statistics of cases handled by juvenile courts. The latest of these studies is entitled "Juvenile Court Statistics, 1932." In addition to data on local juvenile courts, this report includes statistics of juvenile offenders handled in the Federal courts.

New Federal Policy.—For the past two years the Department of Justice, recognizing that the Federal Courts are not properly organized to care for juvenile offenders, has been applying a new policy which calls for transferring to state and local agencies all juvenile cases which they can handle effectively. The U. S. Children's Bureau has assisted greatly in carrying out this new policy, by providing expert field investigation service which is directed toward the evaluation of local resources for dealing with juveniles, the development of better coöperation between Federal and local agencies, and the stimulation of local agencies toward higher standards.

Juvenile Reformatory Survey. — The Federal Children's Bureau has in preparation a very detailed statistical case study of a large number of minors who have been paroled from representative juvenile reformatories. This study will provide data on juvenile offenders comparable with that obtained on adults by the Gluecks in their notable study "500 Criminal Careers."

Census, 1933. — The Bureau of the Census has collected data for 1933 on inmates of juvenile reformatories, similar to the statistics in the previous decennial census report, entitled "Children Under Institutional Care, 1923."

RESEARCH

Chief Types.—Aside from developments with reference to general criminal statistics, which have been already mentioned, research in the field of criminology and delinquency during the past year has been chiefly of the following types: (1) Additional delinquency area studies, similar to the pioneer studies made by Clifford Shaw and associates in Chicago, have been made by Shaw and other investigators in a considerable number of places; (2) Intensive case studies of prisoners and other groups of delinquents are being carried on in a number of places; (3) Studies of the work of courts, police departments and other law enforcement agencies, similar in type to previous surveys by state and city crime commision; (4) Experiments with prediction techniques, chiefly in the parole and probation fields; (5) Identification work and crime investigation by scientific laboratory methods, including the of the so-called "lie detector," being done in various places, notal at California University under Pol Chief Vollmer of Berkeley, at t Scientific Crime Detection Laborato of Northwestern University in C cago, and by the Division of Inves gation, U. S. Department of Ju tice.

Norfolk Prison Colony.—Resear work chiefly of the case study typ which is linked up with experiment tion in the use of varied methods treatment, is being done at the No folk Prison Colony in Massach setts.

Criminological Research Bulleti —Extensive information as to specif research projects in criminology an delinquency is to be found in th *Criminological Research Bullet* (mimeographed) issued annually b the Bureau of Social Hygiene, Inc 61 Broadway, New York City.

PRISONS AND PENAL CONDITIONS

BY WILLIAM B. COX

EXECUTIVE SECRETARY, THE OSBORNE ASSOCIATION, INC.

PRISON DISTURBANCES

The year 1933 was marked by a few spectacular events such as were characteristic of the three previous years in prison affairs. The Eastern Penitentiary at Philadelphia was the scene of a series of serious riots which extended over a period from Sept. 26 to Nov. 22. The succession of violent demonstrations at this institution led Governor Pinchot to appoint a special committee of investigation under the chairmanship of Dr. Louis N. Robinson, nationally known penologist, and also resulted in a separate investigation by the Grand Jury. (At the time this article is being written, neither group has completed its study.) There have been minor troubles in other institutions and a number of daring escapes and attempts to escape, notably at Charlestown, Mass.; Lansing, Kan.; and Michigan City, Ind.

TRENDS IN ADMINISTRATION

The year 1932 saw the beginnin of a new era in prison managemen growing out of a more progressiv point of view on the part of many prison administrators. The year 193 witnessed the continuing expansion and development of classification medical service, recreation, educa tion, and other modern measures in many of the leading institutions of the country. Unfortunately, it has also witnessed the incompatible spectacle of a large number of changes, for political reasons, in the personnel of penal institutions in many states. Michigan, Illinois, Indiana, West Virginia, and Missouri are among the states which have not yet faced the fact that society cannot afford to permit the management of penal institutions to be subjected to direct political influence. The domination of politics in the affairs of prisons and reformatories continues to stand in the way of general progress toward a truly protective and preventive penal system.

INMATE PARTICIPATION IN PRISON ADMINISTRATION

Another important development in 1933 is the reawakening of interest in inmate participation as an agency of effective prison administration. Originally introduced into adult penal institutions by Thomas Mott Osborne in the form of the Mutual Welfare League at Auburn and Sing Sing Prisons, New York, and the U. S. Naval Prison at Portsmouth, N. H., inmate participation or ''self-government'' played a prominent part in prison management in the years between 1914 and 1919. After 1918, and particularly after Mr. Osborne's death in 1926, the movement declined in importance until, for the last few years it has been an almost negligible factor. Now its value as an aid to true rehabilitation seems to be gaining recognition again. Four important institutions for men have complete inmate community organizations while several others have inmate committees to work with the officials in planning recreation and other welfare activities. The new developments in the field of inmate participation indicate that disciplinary matters will not be considered to be within the scope of inmate organizations. This change may be the solution to the greatest difficulties encountered in previous attempts at training inmates for ''self-government.'' Prominent among the institutions where work of this character is being attempted are: The State Prison Colony, Norfolk, Mass.; Maryland State Penal Farm, Roxbury, Md.; the United States Penitentiary, Leavenworth, Kan.; the United States Industrial Reformatory, Chillicothe, O.; Sing Sing Prison, Ossining, N. Y.; Annandale Farms, Annandale, N. J., and several of the leading institutions for women.

PRISON INDUSTRIES

The Competitive Factor.—The first step toward what we now consider modern penal methods was the employment of prisoners at productive labor. While no one has seriously questioned the rehabilitative value of suitable work for prisoners nor denied the deteriorating effects of idleness, no other phase of prison administration has had to contend with such strong and well-organized opposition. The competition of prison-made goods with those made in free industry served to align the forces of both capital and labor into combined attacks upon the employment of convicts under any system of prison industry which included the sale of prison products on the open market. As early as 1823 the cabinet-makers of New York made a strong protest against the competition of prison labor, and from that time on the opposition to open-market sales has developed greater strength. As a result of this opposition, many states have forbidden the sale of their prison-made goods in the open market and have attempted to meet the situation by manufacturing and producing goods for sale to the state and its political sub-divisions only. This plan, commonly called ''The State-Use System,'' secured the endorsement of both labor and capital since it restricted the competitive field very definitely. At the same time it attracted the favorable attention of many theoretical penologists because it made for a greater diversification of prison industries with consequent diversification of training opportunities. On the other hand, in those states which adopted states-use as the sole method of employing convicts, the number of inmates employed in productive labor is in general proportionately less than under other systems. The restricted market serves to increase the amount of idleness. In 1929 Congress, however, passed the Hawes-Cooper Act as a means of fostering the more extensive application of the states-use system. This act divests prison-made goods of their inter-state character and permits any state to impose the same restrictions upon the open-market sale of prison products from outside the state that it imposes upon the products of its own penal institutions.

Compact of Fair Competition.—The fate of prison labor has been the foremost question in the minds of penologists, both practical and theoretical, in 1933. Already seriously threatened by the influence of the Hawes-Cooper Act, which becomes effective in January, 1934, another and more immediate threat to the employment of prisoners arose in connection with the promulgation of codes of fair competition under the National Recovery Administration. A number of the codes submitted to the NRA contained clauses which would either prohibit entirely the productive employment of prisoners or so restrict their activities as to further increase the already dangerous amount of idleness in prisons. At the joint call of the American Prison Association and The Osborne Association, Inc., several conferences attended by representatives of various state penal systems were held to determine how the penal authorities could coöperate to do away with the "unfair competition" charged by the opponents of prison labor without sacrificing the indispensable rehabilitative value of work for prisoners. These conferences culminated in a conference at Washington on Sept. 8, 1933, attended by representatives of 32 state prison systems and the U. S. Bureau of Prisons. As a result of this conference a Compact of Fair Competition for the Prison Industries of the United States of America has been prepared and submitted to the several states and the National Recovery Administration for approval. This compact provides that: (1) the hours of labor in prison industries shall not be more than those prescribed by the applicable code governing the operation of each industry outside of institutions and sets a maximum limit of forty hours a week for all industries; (2) that the hours of operation of productive machinery shall be not more than is prescribed in the code of the same industry under private management; (3) no persons under sixteen years of age shall be employed in any prison industry; (4) prison products shall not be sold at a figure lower than the fair current price prevailing in the market in which the product is customarily sold; (5) no institution shall enter into any contract for the labor of prisoners which does not insure a return from the contractor to the state and/or the prisoner of an amount equal in value to the cost per unit of product for labor and overhead in similar private industry. The Compact excepts from its provisions all goods manufactured or produced for the use of the state and its political sub-divisions and all work performed for the state which might be termed Public Works. A committee consisting of nine members, six elected by the representatives of the states and three appointed by the President of the United States is created to administer the new Compact which became effective and binding upon all signatory states on January 1, 1934. The formulation of this Compact is extremely significant, not only because it offers a hopeful solution of this very old problem, but also because it signalizes the first successful attempt of prison administrators as a whole to join forces to meet the organized attack with organized and coördinated action. Until now factionalism and discord among prison authorities have given the opponents of prison labor a great advantage which will not exist under the coöperative spirit manifested in the Compact.

FEDERAL MAXIMUM-SECURITY PRISONS

Much has been written in the public press about the plan of the U. S. Department of Justice, through its Bureau of Prisons, to establish an "American Devil's Island" on Alcatraz Island in San Francisco Bay. Nothing could be further from the truth than to link up the government's plan for returning the Alcatraz prison to the civil authorities for use as a maximum-security institution for the most dangerous type of convicts with the French penal colony commonly known as ''Devil's Island.'' The prison located on Alcatraz Island was built in 1909. It has been used before as a civil prison but more recently has served as a military prison under the name, Pacific Branch, United States Disciplinary Barracks. A complete description of the plant is contained in the 1929 edition of the *Handbook of American Prisons and Reformatories* published by The Osborne Association, Inc. The modern school of scientifically trained penologists have long advocated, as a part of a program of classification, that the relatively few vicious and intractable prisoners found in any prison system should be segregated in order that their influence may not operate to retard or render impossible the rehabilitation of the more hopeful group. The presence of even a few men for whom there is little or no likelihood of reformation in an institution which also houses redeemable prisoners makes it necessary to deprive the better class of many opportunities for self-improvement in order to guard against the escape of the minority group of dangerous prisoners.

SOCIALISM

By Nathan Fine

Rand School of Social Science

MUNICIPAL ELECTIONS

Bridgeport.—The high light of the 1933 municipal elections was the victory in Bridgeport, Conn. Jasper McLevy, trade union leader and member of the national executive committee of the Socialist Party, after ten previous candidacies for the same office, was elected mayor by a vote of 22,726 to 16,584 for his Democratic opponent and 7,629 for the Republican candidate. Twelve out of sixteen aldermanic seats were also captured, together with most of the city-wide offices.

Reading. — In Reading, Penn., where the Socialists had in a three-cornered fight won all offices, in 1927 and 1929, the Republicans and Democrats buried their differences in 1933, as they did in 1931, and thus succeeded in eliminating the Socialist Party from all positions in the city.

New York.—The Socialist vote in New York City reached 75,068 for the candidates for aldermen in the November election, but it was only 63,450 for the mayoralty aspirant, Charles Solomon. The drop from the high vote received by Norman Thomas in 1929 and by Morris Hillquit in 1932, was due to the presence of Fiorello LaGuardia, with his labor and liberal sympathies, as candidate of the Fusion-Republican ticket, the spirit of the campaign with its anti-Tammany drive, and the certainty that the Socialist candidate could not win.

Milwaukee.—Daniel W. Hoan contines as Mayor of Milwaukee. A recall fight which was started against him failed ignominiously, when the petition with 46,000 alleged signatures was withdrawn after court testimony revealed fraud and forgery in its composition.

Other Cities.—In Two Rivers and Green Bay, Wisconsin, a councilman was elected; in Weston, Virginia, Dr. M. S. Holt a war resister, barred from the ballot, was elected by a write-in campaign. In Arizona, where an election to Congress was held in October, the Socialist candidate polled over 5,000 votes and passed the Republican contender.

UNITED FRONT POLICY

Anti-War Congress.—In order to clarify its position the national executive committee of the Socialist Party, by a vote of 7 to 4, declared that no state, local or other subdivision should cooperate with the Communist Party or its auxiliaries without its consent. Subsequently the executive elected a subcommittee of three members, Julius Gerber, Harry W. Laidler and Edward Levinson of New York, to represent the party in arrangements with the controlling committee of the Anti-war Congress, called by a group in which the Communist Party was represented. It decided to participate on condition that the Congress was not dominated by any party or group and that internecine warfare was barred. The subcommittee and the party, however, withdrew subsequently on the ground of continued violations of the second provision by the Communists.

Attitude toward Party Groups.—At its October meeting the executive defined its attitude toward third party groups. It decided that any member who aided in the organization of another party or in the nomination of candidates other than those of the Socialist Party, without its consent, should be subject to expulsion, and further, that the Farmer-Labor Political Federation and the League for Independent Political Action were organizations coming under the ban.

Continental Congress.—The Socialist Party took the initiative in calling a Continental Congress in Washington, D. C., May 6-7, 1933. More than 4,000 delegates came, representing trade unions, unemployed groups, farmer organizations, and labor political bodies. A Declaration of Independence along socialistic lines was adopted as were a number of resolutions on economic and international problems. An attempt by supporters of the League for Independent Political Action and the Conference for Progressive Labor Action to swing the Congress in favor of the immediate formation of a Farmer-Labor party was defeated. A number of state congresses were also held at which resolutions were adopted and action was taken in the interest of the producing classes.

AID TO OTHER GROUPS

Trade Unions.—Taking advantage of the National Industrial Recovery Act the national executive committee urged the party members to help build the trade unions. Together with th youngsters in the Young People Socialist League the latter actively assisted in organizing work in the leading industrial cities, involving radi workers taxi-drivers, ball-bearin workers, dressmakers, neckwear makers, hosiery workers, auto-workers shirtmakers, pocket-book makers, newsboys, and a host of other wage earners. The executive pointed out th dangers of the NRA, also the possibilities of compulsory arbitration o labor disputes, the outlawry of strikes and its use as the framework of Fascist state.

Leagues of Unemployed.—Socialists continued to participate in an organize leagues of the unemployed They furthered demonstrations, propaganda, programs for relief, preventions of evictions, and pressure o public authorities. A national jobless convention was sponsored by the Federation of Unemployed Workers Leagues of which Karl Borders o the Chicago office of the League for Industrial Democracy was chairman to unite all the unemployed bodies Although not invited, spokesmen for the Communist-controlled Unemployed Councils applied and were admitted. With the aid of the delegations from the Conference for Progressive Labor Action and other organizations they succeeded in dominating the convention and using it for their own left-wing or Communist purposes.

Anti-Fascist Activities. — Stimulated by the success of the Hitlerites in Germany the party set up a League Against Fascism for the double purpose of raising relief for the exiles and to promote anti-Nazi propaganda in the United States. Demonstrations have been held throughout the country. The boycott against German goods, being pushed by the world trade union and Socialist organizations, has been endorsed by the national executive of the Socialist Party of the United States. Campaigns have been waged against native Fascist groups, the Khaki and Silver Shirts, and every assistance has been given to the defense of Terzani, accused of killing a fellow anti-Fascist by Art Smith, the discredited Khaki Shirt leader. To the special international Socialist conference held in Paris during the summer and called to consider tactics in view of the Fascist danger, the national executive elected Clarence Senior, secretary of the party; Maynard Krueger, Edward Levinson, David Felix, Jacob Panken, and Herman Kobbe. A majority of the American delegation, Senior, Krueger, Levinson and Felix, supported the position of the minority in the conference for what might be described as left-wing Socialist tactics.

PARTY MEMBERSHIP AND ORGANIZATION

As of September 30, 1933, the national secretary reported an average membership for the first nine months of the year of 16,261. In place of Morris Hillquit, the national executive committee elected Leo Krzycki as chairman of the party. He is a member of the general executive board of the Amalgamated Clothing Workers, a former under-sheriff of Milwaukee, former state secretary of the Wisconsin Socialist Party and will serve until the next convention, which is to be held in Detroit, some time in May or June, 1934. John M. Collins, a veteran of the Chicago labor and Socialist movement, was added to the national executive committee. The *American Socialist Quarterly* was taken over by the executive and made the official organ of the party for theoretical discussion. Four additional editors were named, Devere Allen, Andrew Biemiller, Roy Burt and Harry W. Laidler, to those previously in charge, David P. Berenberg, Haim Kantorovitch, and Anna Bercowitz, now managing editor and business manager.

MORRIS HILLQUIT

The Socialist Party sustained a loss comparable to the passing of Eugene Victor Debs, when Morris Hillquit, its national chairman, died Oct. 8, 1933. The history of the party can be written around the philosophies and activities of these two men. Hillquit directed party policy, Debs appealed to the masses. The latter was the courgeous, outspoken, and fiery evangelist. The former was the schooled, practical party builder, the parliamentarian, the close student of American and world economic and political affairs.

Morris Hillquit was born Aug. 1, 1869, in Riga, Latvia, and came to this country in 1886. He was graduated from the New York University Law School in 1893. In the late nineties he led the opposition to the policies of Daniel DeLeon inside the Socialist Labor Party and was mainly responsible for the union of eastern and western social democrats into the Socialist Party in 1901. In all the vital positions taken by the Socialist Party toward the American Federation of Labor and the Industrial Workers of the World, political *versus* direct action, the entrance of the United States into the World War, the maneuvers of the Communists, the relations to the Conference for Progressive Political Action looking to the formation of a labor party, to mention but a few, the judgment of Hillquit played an important if not decisive role. Within the various Socialist internationals, before and after 1914, Hillquit played an ever greater part. Among the trade unions, particularly those of the needle trades, his advice was constantly sought. In all the auxiliaries of the Socialist movement, the League for Industrial Democracy, the Rand School of Social Science, the Workmen's Circle, the party press, he was an active participant. In truth, from the time the Socialist Party was born, until his death, it was Hillquit's point of view and leadership which were largely followed. And if the Socialist Party did not become a mass party in the sense that the British Labor Party speaks for the toilers of Great Britain, it was due to the difference in conditions and not to any limitations of that great American and international figure.

SOCIALIST LABOR PARTY

The parent body, from which a number of those who helped to start the Socialist Party separated themselves, continued its educational, organizational, and political activities. The Socialist Labor Party distinguishes itself from the Socialist Party on the one hand and the Communist groups on the other. Against the former it excludes immediate demands from its platforms and ''vote-chasing'' appeals, in a word, ''reformist'' policies. Against the Communists it is not affiliated with the Third International and opposes Communist methods on the industrial and political fields for this country. The Socialist Labor Party publishes the *Weekly People,* its official English organ, besides a number of other papers in foreign tongues. It nominated candidates in the November, 1933, elections in many of the industrial cities and during the year toured several of its organizers through the country. No membership figures are available. Its vote in 1932 was but a fraction of that received by the Socialist Party.

MISCELLANEOUS

Dr. Frank Soukup, speaker of the Senate of the Czechoslovakian Republic and a Socialist, together with Fred Henderson, Harold Laski and Susan Lawrence of the British Labor Party, as well as A. Fenner Brockway of the Independent Labor Party, visited the country and addressed a number of meetings.

A convert during the year was John Haynes Holmes of New York Cit On the other hand Heywood Brou and Paul Blanshard of New York r signed from the party. Upton Sincla of California left also to enter th state Democratic Party primaries a a candidate for governor with a pr gram to abolish poverty.

A pamphlet series was inaugurate by the national office under the general title of ''Issues of the Day.'' Th first covered the NRA by Maynar Krueger, Andrew J. Biemiller an John F. Sullivan, and the second wa called ''Taxes and Tax Dodgers,'' b Mayor Daniel W. Hoan.

The Rand School of Social Science besides continuing its first correspondence course, ''An Introduction t Scientific Socialism,'' started a secon ''Elements of Economics,'' whic study classes, together with those conducted by the national office of th party, reached thousands of member and sympathizers.

The League for Industrial Democracy, of which Harry W. Laidler an Norman Thomas are the directors published a number of pamphlets a usual and carried on its work in th colleges and industrial centers.

Among those who passed awa during the year should be mentione Dr. R. B. Green of Chicago, Willia Coleman of Milwaukee, Frederic Krafft of New Jersey, and Carrie W Allen of New York.

SOCIAL HYGIENE

By Mary S. Edwards

American Social Hygiene Association

GENERAL CONDITIONS

Reports of conditions in 1933 in the field of social hygiene continued to indicate that public treatment facilities for the indigent and unemployed were inadequate to meet the increased demand brought about by inability of individuals to pay private doctors. Some communities have reported an apparent rise in syphilis and other so-called venereal diseases due to the presence of untreated infectious cases among the population. Lack of public funds has in many cases caused the closing of the doors of city and state subsidized clinics. Funds of the Federal Emergency Relief Administration have been utilized to supply some of the lacks by purchase of drugs for free distribution to physicians and clinics and by payment of private physicians on a fee basis from public funds for treatment of venereal disease patients on relief.

Nation-wide studies in 1932 and 1933 of commercialized prostitution have indicated a distinctly unfavorable trend in volume and accessibility. This, it is believed, is due chiefly to the indifference of public opinion occupied with other questions of common interest, a let-down by officials in law enforcement measures, because of lessened personnel and other factors, and an increase in the activities of third-party exploiters of prostitution for monetary gain. There is no doubt that many women of the promiscuous type have during the depression become prostitutes for that they thought was a way of making a living. They have been enabled to do this because of the lessening of restrictions already referred to and the advertising in the underworld of certain communities as "safe" places to work.

Measures towards alleviation of these conditions have been handicapped by curtailment of funds, both official and private. An enquiry among the 48 states presented three salient points: (1) Some of the effects of four years of financial depression as illustrated by the heavy burden placed on free clinics and individual physicians for the treatment of syphilis and gonorrhea; (2) a generally reduced basis for financial support of all social hygiene activities whether voluntary or official, again, of course, due to financial depression; (3) a splendid courage and determination to carry on in the face of a discouraging situation.

In communities where there are no local social hygiene agencies or special societies an effort has been made during the past year to utilize existing organizations for the accomplishment of essential program activities. This has been possible through general health societies such as tuberculosis and health associations, state and local medical societies, men's and women's clubs, parent and teacher organizations, adult and juvenile protective societies and others. Federal, state and city official bodies have also been active. Local social hygiene societies have striven to carry on their programs effectively despite reduced budgets.

THE UNITED STATES PUBLIC HEALTH SERVICE

During the fiscal year 1933, the Division of Venereal Diseases conducted activities along four-fold lines—research, coöperation with the states, informative and preventive. The research work included laboratory investigations, studies in the malaria treatment of syphilis of the central nervous system, clinical studies in connection with untreated syphilis in the Negro, coöperative clinical investigations pertaining to the diagnosis and treatment of syphilis, and prevalence studies of the venereal diseases. Coöperative activities were carried on with the health departments of several states, with other branches of the Federal Government and with other divisions of the United States Public Health Service. The educational work consisted of the distribution of informative and educational material, respectively, to physicians and the public. The sole preventive activity embraced the Hot Springs Clinic which is an important unit in the prevention of the interstate spread of the venereal diseases. Laboratory studies had to do with the field of personal prophylaxis in syphilis, with potential infectivity of various types of the disease in human beings which do not display open manifestations, with the life cycle of the spirochaete, with culture of spirochaeta pallida under controlled conditions, with malaria and artificial fever therapy, and other important subjects. The study of untreated syphilis in Negroes has continued, both to note the extensive damage done by late syphilis and to obtain a measure by which adequately and inadequately treated syphilis may be evaluated, the latter purpose because of the well-known social and economic difficulties interfering with the adequate treatment of syphilis and the necessity for ascertaining if possible the relative benefits accrued when treatment is adequate and inadequate.

RESEARCH IN SYPHILIS

Four hundred male untreated cases of syphilis have been found for the purpose of this study. In order to uncover these it was necessary to examine 4,025 Negroes, of which 22.5 per cent gave a definite positive test for syphilis on two occasions and an additional 5.5 per cent gave doubtful positives on two occasions or a single positive at only one time. The records on these studies have not been completely analyzed, but a preliminary check-up indicates that cardiovascular syphilis is extremely common in the group, and syphilis of the skin and osseus system fairly so. Involvement of the central nervous system was not infrequent but was usually of a vascular type.

Attempts have been made in coöperation with the Central State Hospital at Columbia, S. C., to increase the supply of malaria plasmodia for use in mental institutions, as this has been inadequate up to the present time. Culture of suitable material for infecting with malaria persons with syphilis of the central nervous system has included production of a quartan strain for use with cases previously refractory to the tertian strain.

PREVALENCE STUDIES

Efforts have been continued to determine the extent of syphilis and gonorrhea in various communities in the United States by means of the one-day census studies of cases under treatment by authorized agencies and individuals. The results of a re-survey of territory with a population of approximately 7,000,000 people showed that the rate of syphilis under treatment was higher than at the time of the first surveys of these same communities, while the rate of gonorrhea was lower. It is believed that the higher percentage of syphilis under treatment indicates, not an increased incidence, but the fact that health officers are more successful in getting untreated cases under care of physicians. The average trend for gonorrhea under treatment was slightly downward, although there were a number of small communities which showed a decidedly high percentage of increase. Taking the upward tendency of syphilis into consideration, it is hard to believe that there has been any decrease in incidence. It is probable that present economic conditions are deterring persons with gonococcus infections from going to physicians for treatment. Reduced public facilities for free treatment is probably also a factor in the lower number under treatment.

REPORTED CASES OF VENEREAL DISEASE

During the fiscal year 47 states reported a total of 386,597 cases of venereal disease — 234,647 syphilis, 149,527 gonorrhea, and 2,423 chancroid, indicating a decrease in all three groups in comparison with the cases reported for the previous year. However, there was an increase of 6 per cent in the number of doses of arsphenamine distributed by the states. There is considerable evidence to show that the decreased number of cases of venereal disease reported is due to seriously curtailed health budgets in a number of states as well as decreased appropriations for the maintenance of clinics where treatment, free or at a nominal charge, may be given to individuals who cannot afford to pay the regular fees.

VOLUNTARY SOCIAL HYGIENE ASSOCIATIONS IN COOPERATION WITH OFFICIAL GROUPS

The main emphasis of voluntary associations during the past year has been mass education of the public regarding the facts of syphilis and gonorrhea. The effectiveness of such efforts was demonstrated in an experimental campaign of a month in Reading, Pa. Talks by physicians before all types of community groups, film showings, radio broadcasts, newspaper publicity, the distribution of special pamphlets and posters among the employees of industries and others, were the means employed to inform the general population about these diseases. The campaign resulted in a striking change of public attitude towards more frank acceptance of and respect for such information and in an actual average increase of at least 20 per cent in new cases of syphilis and gonorrhea under medical care, as compared with the number of cases just before the campaign. In addition, a large number of persons found not to be infected were prompted to go to physicians and clinics for advice or examination. These tangible results show that the campaign secured a widespread appreciation in the community of preventive effort.

"DAMAGED LIVES"

An interesting and unique development of the year is the introduction to the public of a new motion picture "Damaged Lives," dealing with syphilis and family life, produced by the Weldon Pictures Corporation with the advice of a medical consultant, Dr. Gordan Bates, General Director of the Canadian Social Hygiene Council, and sponsored in the United States by the American Social Hygiene Association. It is accompanied in its showings by an illustrated film talk prepared by the Association for explanation of the drama's scientific theme. Specially prepared pamphlets are also available to the public to supplement the information of the films. Both the drama and film talk have been produced with every attention to good taste, good photography and general interest. The early evidence indicates that the production may be expected to do much toward dissipating the lack of information and fear of irreparable consequences which for many people still surround the disease syphilis in spite of twenty years of public education on the subject.

CLINICAL STUDIES

A series of studies has been instituted by the American Social Hygiene Association in coöperation with various clinics to find out what factors keep patients coming for treatment for syphilis, and what make them discontinue before their infections are permanently arrested. The first step in this direction was an inquiry among Negro patients at a large city hospital in New York to find out the patients' attitude toward syphilis and its treatment and the degree of their education regarding the dangers of this infection. Interviews revealed that most of the patients had no knowledge of the origin of their infection, the seriousness of syphilis, its modes of transmission, nor its infectiousness. They possessed no appreciation for the need of sustained treatment. They were ignorant of genital hygiene and prophylaxis, and had not received any formal sex education either in their homes or school. It was significant to note that the wives' knowledge that their husbands were under treatment made no difference in their marital relations. The group generally had a distinct terminology for the symptoms of syphilis, but these symptoms were not recognized as those of syphilis. None of this group had resorted to a drug store diagnosis and treatment or quackery for genital manifestations of syphilis, though all of them admitted seeking drug store treatment for conditions that might or might not have been other symptoms of syphilis. Finally, the printed material at present furnished in the hospital was found to be almost useless for the adequate instruction of these patients.

A second study in the series was made in a clinic in a state where there is legal authority for compelling infectious persons to be treated. This clinic had an excellent attendance record, and the staff believed that the authority of the law behind them was a great help in ensuring that patients were treated persistently and continuously.

MEDICAL EDUCATION

Another phase of education in the campaign against syphilis is the proper equipment of medical students to deal with syphilis in general practice. There are in the United States at a conservative estimate 6,000,000 persons infected with syphilis. As shown by census of cases under treatment hardly one-twelfth of these are being cared for. These are 64 per cent in the hands of private practitioners as private patients, and only 36 per cent in public clinics, hospitals and similar institutions. This means that the private physician has the best chance to institute control measures. An inquiry among schools with four-year medical courses revealed a wide range between the best and the worst in the extent and thoroughness with which the subject is taught. The report recommended that the policy and practice of the upper third of the schools in this matter become the minimum standard of all the schools.

As a further approach to the training of qualified practitioners in the treatment of syphilis a series of syphilis institutes has been organized throughout the southern states for the benefit of Negro physicians, including Charleston, S. C., Savannah, Ga., and Jacksonville, Fla. This experiment has been greeted with enthusiasm by the medical profession. The institutes consisted of three-day periods of lectures with clinical demonstrations of diagnosis and treatment. It is now suggested that these institutes be repeated all over the country for white physicians as well, especially those practicing in rural regions. Lecture institutes for the benefit of public health nurses, both white and Negro, have been conducted in Denver, Col.; Hackensack, N. J.; Richmond, Va.; Hampton, Va., and Birmingham, Ala.

CONGENITAL SYPHILIS

The American Medical Association, the Conference of State and Provincial Health Authorities, and other professional bodies in 1933 formally agreed to the blood test for every pregnant woman as a routine procedure. If this practice is universally accepted, it should in time lead to the practical elimination of congenital syphilis with its crippling after-effects such as blindness and vision impairment due to interstitial keratitis, deafness and other serious conditions. Educating the public as to the facts concerning congenital syphilis and its prevention continued to be emphasized by social hygiene societies and other interested groups during the past year.

Other studies conducted during the year by the American Social Hygiene Association in coöperation with local agencies have concerned quacks and other unethical practitioners exploiting the inhabitants of the chief Negro and Chinese districts of New York City. These resulted in the conviction and punishment of fifteen such practitioners. Similar inquiries were made in Newark, N. J., and in Delaware County, Pa. Clinic studies looking towards improvement of procedures and techniques have been conducted in the New York Dispensary and the Hospital for Joint Diseases in New York City, in the Newark Health Department Clinic, and in Delaware County, Pa.

LEGAL AND PROTECTIVE ACTIVITIES

Among the important legal and protective activities in social hygiene may be mentioned coöperation of social hygiene societies with other voluntary and official forces to aid the Civilian Conservation Corps in protecting its members from venereal diseases while in the Reforestation Camps; coöperation of the American Social Hygiene Association with Chicago health and welfare agencies to repress prostitution in Chicago especially during the period of the Century of Progress Exposition; studies of problems of the homeless and transients and of communities in dealing with them. During the year the American Social Hygiene Association completed a new study of social hygiene laws dealing with prostitution, venereal disease, sex crimes, juvenile delinquency, and other related topics. Observations have been continued by the Association of the publication and distribution of obscene and salacious literature throughout the country, and coöperation has been given the Federal Post Office Department in the suppression of such objectionable materials.

EDUCATIONAL DEVELOPMENTS

Interest in family consultation services still grows, and about a dozen family advisory centers supported largely by philanthropy have continued to develop techniques incident to this field of clinical work and to collect case history data based on the success and failure of individual adjustments. The main problem before such family centers seems to be one of providing service much broader in scope at greatly reduced costs, and this problem resolves into one of need for improved general educational opportunities along lines of sex education and training for marriage and parenthood. The progress of the Department of Home and Church of the Federal Council of Churches to promote interest in training of this type through the church is most encouraging. Another educational development is the tremendous and growing sense of responsibility of public libraries to provide proper reading material for their readers on social hygiene topics. As an aid to libraries, the American Social Hygiene Association has organized a series of small loan collections containing a dozen books or so which are available to libraries upon request. The Congress of Parents and Teachers has continued its interest and active promotion of sex education, and work in the schools is growing despite the necessary curtailment of activities on account of the financial depression.

SOCIAL HYGIENE MEETINGS

Important meetings of the year have been the Regional Social Hygiene Conferences in New York, Indianapolis, and in Wilkes-Barre. An exhibit on modern concepts of treatment and diagnosis of gonorrhea arranged by a group of medical specialists in coöperation with the American Social Hygiene Association, received the Certificate of Merit at the Scientific Exhibit of the American Medical Association this year. Social hygiene programs were included by the American Library Association, American Hospital Association, American Public Health Association, Conference of State and Provincial Health Authorities of North America, National Conference on Social Work, National Congress of Parents and Teachers, Wisconsin State League of Nursing Education, Ohio Welfare Conference, Vermont Federation of Women's Clubs, Institute on Conservation of Vision at Buffalo, N. Y., Junior League of Philadelphia, Western Pennsylvania Education Conference, and other state and regional meetings.

MENTAL HYGIENE

By Paul O. Komora

Associate Secretary, The National Committee for Mental Hygiene

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FOUNDING ANNIVERSARY

On May 6, 1908, two months after the publication of his autobiography, *A Mind That Found Itself*, Clifford W. Beers and a group of his friends met in New Haven to organize the Connecticut Society for Mental Hygiene "for the improvement of conditions among the insane and the protection of the mental health of the public at large." On May 6, 1933, professional and lay leaders from many walks of life gathered at Sprague Hall, Yale University, to celebrate the twenty-fifth anniversary of the founding of this society and the now world-wide movement into which it has grown. On May 10, Mr. Beers was the guest of honor at a meeting held in Boston to commemorate the twentieth anniversary of the establishment of the Massachusetts Society for Mental Hygiene, one of the more than forty state and local organizations that have been set up in this country to promote the aims of mental hygiene. On the following day, at its annual meeting in New York City, the National Institute of Social Sciences conferred upon Mr. Beers its Gold Medal in recognition of his "distinguished services for the benefit of mankind in connection with the establishment (in 1909) and work of The National Committee for Mental Hygiene." Similar national societies have been established in twenty-five other countries, beginning with the organization of the Canadian National Committee for Mental Hygiene in 1918, thanks largely to Mr. Beers and his epochal book, now in its nineteenth printing. For his work in the international field, the French Government recently awarded him the Legion of Honor,

PROGRESS OF MENTAL HYGIENE MOVEMENT

Epitomizing a quarter-century of progress, one sees the following accomplishments to the credit of the mental hygiene movement: (1) Inauguration of studies of the problem of mental disease that have resulted in the most far-reaching reforms in the care of the insane in this country since the day of Dorothea Dix; in this process (2) it has humanized the care and treatment of the mentally sick, abolishing the worst of the evils of jail and almshouse care, hospitalizing asylums and reducing to a minimum mechanical restraint, seclusion and other forms of abuse and neglect; (3) it has instigated and developed constructive programs for the salvage of the feeble-minded; (4) it has, to a great extent, changed the public attitude toward insanity and mental deficiency and corrected misconceptions regarding their nature and causes; (5) it has influenced the administration of criminal justice by bringing about a more rational treatment of the mentally abnormal offender; (6) it inaugurated the child guidance movement for the psychiatric and social study and treatment of juvenile delinquency and other conduct disorders; (7) it has stimulated the establishment of hundreds of clinics for the early diagnosis and treatment of incipient cases and the prevention of the more serious forms of mental disorders; and, most significant of all, (8) it has shown the relationship of mental ill health not only to such social problems as crime and delinquency but also to dependency, suicide, industrial and social unrest, and other problems of human behavior and maladjustment. In short, from a crusade for the better care of the mentally ill it has developed into a force for the common welfare penetrating every field of human endeavor.

INFLUENCE OF MENTAL HYGIENE

Progressive Education.—To take one example, the field of education. Among hundreds of tributes to the mental hygiene movement and its founder that have come to The National Committee for Mental Hygiene during the past year, was a statement from B. P. Fowler, President of the Progressive Education Association, that "the progressive-education movement owes more to mental hygiene than to any other source, with the possible exception of the philosophy of John Dewey."

Medicine.—To take another illustration—the influence of the mental hygiene movement on medicine. According to Alexis Carrel, "a radical change has taken place in the attitude of the medical profession and of the public toward those afflicted with mental diseases. It has been brought to the knowledge of everybody that these diseases are more frequent than all other diseases put together, that the health of the mind is far more important than the health of the body." In the words of Haven Emerson: "Until the appearance of *A Mind That Found Itself* in 1908, the preoccupation of physicians and sanitarians was limited almost exclusively to those opportunities then ready to hand to eradicate disease of bacterial origin conveyed largely by man's own disregard of his fellow. It was the body of man we were concerned with saving, it was his material surroundings we were trying to improve in his interest."

The growing attention of the general medical profession to the problem of mental disease was forcefully emphasized in a report of a two-year study of the status of psychiatry in medical education published by The National Committee for Mental Hygiene last summer. Medical educators, according to this report, deplore the fact that there has been an over-production of specialists in the various branches of medicine while, at the same time, there exists a serious shortage of trained men capable of dealing with the more difficult forms of mental and nervous maladjustments. The report stressed the urgent need for a fuller understanding of the mental aspects of general medical practice and proposed reforms in the medical curriculum to counteract the evil of the treatment of mental ailments by unqualified or poorly qualified persons. Summarizing its findings in 68 medical schools in the United States and Canada, it showed that "psychiatric education is a matter of general concern among deans, and that considerable progress has been made, as shown by the recent efforts in many of the medical schools to improve psychiatric teaching and provide better clinical facilities."

One of the major results of the National Committee's work in this direction was the significant action taken by the American Psychiatric Association last spring. The Committee proposed that an examining board be established to pass on the qualifications of physicians who seek standing as specialists in mental and nervous disorders, and to confer a diploma in psychiatry upon those qualifying. This recommendation was adopted by the Association and the qualifying board actually created. This board is now preparing to function. The inauguration of a diploma in psychiatry is considered of vital importance and significance for the profession and for the protection of the public. It is expected to give a new stimulus to post-graduate training in mental medicine and a new impetus to the advancement of standards. Under the tentative plans worked out by the board, candidates for the diploma will be required to have had at least six years of special training and experience in psychiatry, after graduation from an approved medical school and a satisfactory interneship.

HOSPITAL FACILITIES AND TREATMENT

A word as to the general mental health picture, in the light of recent economic history. Preliminary returns to a questionnaire study now in progress indicate a marked increase in first admissions to state mental hospitals, due presumably to depression conditions. Answers from 13 state hospitals show percentage increases ranging from 2 to 58 per cent. Even larger increases are noted in readmissions. These increases, coupled with inability to discharge patients to their homes as formerly, have brought about serious over-crowding in many state hospitals, the percentage of over-crowding in 16 of the institutions reporting ranging from 5 to 41 per cent. Eleven hospitals report reductions in their allowance for maintenance ranging from 7 to 31 per cent, and some of the superintendents fear that further cuts will be reflected in a lowering of standards. A number of them mention the adverse effects of drastic budget cutting on their clinical work. Classification of patients has become impaired, and therapeutic activities have been curtailed and to some extent eliminated.

It is hoped that the complete report, when the returns are all in, will be a more optimistic one than these first findings indicate, but it is certain that the picture in relation to one aspect of the situation, namely, over-crowding, is not overdrawn. The problem of over-crowding, a more or less chronic one in normal times and greatly aggravated by the depression, is especially acute at this time, for with very few exceptions the states have been unable to raise funds for hospital expansion during the depression years.

Fortunately, this picture has also its bright side, thanks to the Federal Government's recovery effort, as an increasing number of these institutions are availing themselves of the opportunity presented by the public works program to secure funds for construction purposes. Upwards of $7,000,000 of Federal monies have been allotted for state hospital projects during the past few months, and additional allotments are looked for. These allotments will help materially to relieve over-crowding in many of the states, though they represent only a part of the vast amount needed to ease a condition that has become general among state hospitals in recent years.

UNEMPLOYMENT RELIEF

Mindful of their responsibilities in the present situation, mental hygiene organizations are devoting what they can of their limited resources to the common effort to ameliorate the psychological consequences of unemployment. State societies for mental hygiene are drawing freely upon psychiatric talent in their territories in an educational effort, by radio, press and platform, to bring to the unemployed and the public generally some measure of self-help through the practical application of present-day knowledge of mental health principles. The National Committee for Mental Hygiene, as one contribution in this direction, has published and widely circulated a handbook on *Morale: The Mental Hygiene of Unemployment,* to help relief workers, public health nurses, clergymen, educators, and others to deal constructively with the human problems of the depression. The depression has revealed a vast amount of poor adjustment to life that exists unnoticed in normal times and has emphasized the importance of public education in mental hygiene on a large scale. The great need at the present time is for coördinated community programs in which all agencies—philanthropic, industrial, medical, educational, recreational, religious, social—can coöperate, to the end that personnel and facilities may be developed to bring the maladjusted, the inadequate and the under-privileged into contact with the healing and morale-sustaining forces latent in a well organized and closely knit, healthy community life.

CHILD GUIDANCE CLINICS

The general status of child guidance clinics in the United States remains unchanged, with one notable exception, namely, the closing of the Institute for Child Guidance in New York City, because of financial conditions. Fortunately, this withdrawal comes at a time when child guidance clinics have reached a high point in their development, and the discontinuance of this training and research project may perhaps least be felt, since many of these clinics function as training centers which did not exist when the Institute was opened. During its six years of operation it had given formal professional training to 336 persons—32 psychiatrists, 15 psychologists, and 289 psychiatric social workers—and these hold strategic positions in child guidance clinics, mental hospitals, state bureaus of mental hygiene, family and children's agencies throughout the country.

The difficulty of community chests in raising funds during the past year has resulted in some further reductions of clinic budgets, and two clinics were discontinued — in Flint and Grand Rapids, Mich. On the other hand, the tendency of chests to emphasize the non-relief aspects of their programs has served to strengthen the position of some of the clinics and to emphasize progressive trends in general. Another favorable development has been a closer *rapport* between the psychiatrist and the pediatrician who is assuming greater responsibility for psychiatric problems of children. In several medical schools psychiatric clinics have become a part of the pediatric department. Further progress has also been made in the measurement of results in child guidance work and in the refinement of clinic techniques. A helpful and important factor in developing policies and standards has been the extension to an increasing number of the major clinics of a uniform system of central reporting of case statistics.

Among new accretions to the mental hygiene resources of the country should be mentioned the child guidance clinic services set up in Buffalo, New York, and the opening last fall of the new $5,000,000 Bellevue Psychiatric Hospital in New York City. This institution, probably the largest of its kind, occupies an entire city block, and has a capacity of 600 beds, with facilities and equipment for psychiatric treatment, research and training on the most modern scientific level, and with separate divisions for children as well as adult patients. First steps have also been taken toward the establishment of child guidance set-ups in the States of Delaware and Pennsylvania.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY

With the conclusion of its 57th annual meeting in Boston last spring, the American Association for the

Study of the Feebleminded became the American Association on Mental Deficiency. This change in its corporate name is symbolic of the changes in conception, point of view and outlook that have characterized the deliberations of this group in recent years. The leadership in the Association since its inception has been primarily medical, but in the opinion of many of its leaders, it is essential, in order to deal adequately with the problem of mental deficiency, that physicians working in this field should have, in addition to a well-grounded training in neurology, psychiatry and general medicine, a substantial knowledge of the adaptation and interpretation of psychometric tests, a better understanding of the sociological aspects of mental deficiency in relation to community responsibility, and a working knowledge of the educational systems of the public schools and of the special abilities and disabilities of their students. The need for systematic and sustained research in mental defects was emphasized, most of the recent work done in this field being regarded as spasmodic and planless.

CHILD WELFARE

By C. C. Carstens

Executive Director, Child Welfare League of America, Inc.

NEGLECTED AND DEPENDENT CHILDREN

The number of dependent and neglected children in foster family homes has shown an almost constant increase since Jan. 1, 1929, but at a somewhat decreased rate during 1933, mainly because of decreased funds for the care of children. On the other hand, the number of children cared for in foster institutions remained practically constant until July, 1932, when it began to decline because of inadequate funds with which to care for them. Dependent children have, therefore, been increasingly cared for during the depression in foster family homes, and especially in boarding homes.

The Federal Relief Administration, which on July 1st succeeded to the relief work previously done under the auspices of the Reconstruction Finance Corporation, has in generous measure provided funds for the relief of children in their own homes. More than 6,000,000 children are now being safeguarded with their own families through Federal action. This represents a priceless contribution toward the morale of the Nation in its recovery from a long period of distress. There is, however, another group of approximately 600,000, dependent, homeless or neglected children, a large number of whom must also look to the Nation for their care and protection. The Federal Relief Administration discontinued relief for such of these children as had been provided for by Federal funds in certain needy districts. Although some states are still able to meet the needs of all the children within their borders, others, and especially the Gulf States, were not able any longer to do so, through either public or private resources.

Particularly tragic has been the situation of dependent and neglected children in rural areas. While in the cities, private and public service has often been adequate for the care of needy children, those living in the small towns or rural sections have in large measure been dependent upon public service, which in most states was unable to meet the needs.

Because of inadequate financial resources neglected children were being left in deplorable homes, but in addition many who had been taken into foster care had to be returned to their homes from which they had previously been removed by court action. Some of those discharged from care later appeared as delinquents in the courts by which they were originally removed from their homes as neglected. Children who in previous months were not accepted as neglected children have also come into care through delinquency, which is a frequent forerunner of vagabondage and crime.

A larger number of children have been cared for in almshouses during the past year than for many previous years. In such places not only infants with their mothers, or defective children have been harbored, in accordance with a custom which still obtains in certain states, but also able-bodied and bright boys and girls, some of whom are growing up in the midst of insane, feebleminded or degenerate adults.

Foster fathers and mothers throughout the country, who devotedly have taken other people's children into their homes, have been hard hit by the depression, but at great sacrifice most of them have kept the children with them. Because of unemployment, parents and relatives who ordinarily have contributed to the care of these children, have been unable to continue these contributions toward their support in any considerable amount.

State orphanages and other children's institutions have been found to be understaffed and overcrowded. In certain states children cannot be accommodated as fast as they are being committed by the juvenile courts.

Mothers' Aid, one of the bulwarks of family life for dependent children, has in some states been discontinued and in others dangerously reduced. In many places relief funds are being substituted for these allowances, therefore damaging a system carefully built up over a period of twenty years.

There are thousands of children above the age of sixteen years who in ordinary times would have been discharged and integrated into the community's life who cannot be discharged due to the lack of employment or of resources which would make their care in the community possible. The plight of the average high school student of two, three or four years ago is particularly serious and the morale of a considerable number has been much endangered. As in relief, public agencies have had to be turned to, and these have become overloaded with children.

DAY NURSERIES

The numbers of children on the registers of day nurseries began to show a substantial decrease by July 1, 1930, and has shown a steady decline ever since that time, registering about thirty per cent decrease by July 1, 1933, in three years. This decrease is in part due to lack of funds but also due to the lessened need, since when one or more members of the family are out of work they can take care of the children in their own homes.

COUNTY BOARDS

The effect of the depression on county organization for child welfare has been marked. This is particularly true in such states as Minnesota and Alabama where most of the counties had child welfare organizations a few years ago. An increasing number of counties have dropped their county boards or their energies have been completely absorbed by the State Emergency Relief Administration. Of 63 counties having county boards in Alabama on Dec. 1 only 9 were functioning in the child welfare field.

CHILD LABOR

The National Recovery program in the drafting of its industrial codes of fair competition has in most instances included the elimination of child labor, and it is estimated that about 100,000 children under sixteen years of age have been removed from industry and given an opportunity to go back to school. In addition, perhaps 15,000 between sixteen and eighteen who have been in especially hazardous forms of work such as mining, logging and saw-mill operations, have also been removed out of industry.

Additional impetus to the movement for the ratification of an amendment to the United States Constitution, forbidding child labor, has also been given by the Recovery Program, and twenty states have now ratified this amendment. Those ratifying during the year 1933 were: Illinois, Michigan, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, Washington, Iowa, Minnesota, West Virginia, Maine, and Pennsylvania.

HEALTH

Not only are mortality rates of children declining but this is also true of the mortality of adults, with the result that there is a diminishing per cent of orphanhood With the mortality rates prevailing in 1930 there would have been produced among the white population of the United States about 3,085,000 children under the age of seventeen who had lost one or both parents. If in 1930 the old mortality rates of 1901 had prevailed, the corresponding number in the white population of 1930 would have been 5,202,000, a decrease in half or full orphans of 2,117,000 children under seventeen.

The decline in the death rate from tuberculosis continues. The latest provisional report for the registration states was 58.8 per 100,000 of the population. Diminishing numbers are also recorded in the deaths from measles, scarlet fever, diphtheria and whooping cough. In the last three years mortality through diphtheria has dropped all together 64 per cent, unquestionably due to the preventive immunization of children.

BIRTH RATES

According to the figures available for 1931, which are the latest that have been published, the industrial States declined most in the number of births. Connecticut shows the largest drop as compared with 1921, namely, 34.9 per cent, followed closely by New Jersey with 34.5 per cent. Massachusetts came next, with 31.8 per cent; North Carolina fourth with 31.1 per cent, Rhode Island being the fifth, with 30.6 per cent. Georgia had the distinction of being the only state able to show a higher birth rate in 1931 than in 1930. In Oklahoma and Wyoming the figures were identical for the two years.

Although the puerperal death rate of 1932 (10.6 per 100,000) is about half of that reported for the first few years after 1920, the drop is due in part to the declining birth rate, and when the puerperal death rate is determined per 1,000 live births but little variation is shown from year to year.

PROBATION

By Joel R. Moore

Supervisor of Probation, U. S. Bureau of Prisons

THE PROBATION CONCEPT

The year 1933 was marked by an improvement in the concept of the functions of probation. Advanced areas, using probation more extensively and more intelligently, have discarded the superficial notions that probation is a mere "lucky break" for an offender given "one more chance" by a judge who relents and suspends the vengeance of society but holds a threat over the offender's head of revoking the probation for cause and meting out "severe punishment for violation." Instead, more prevalent has become the notion that probation is a process of rehabilitation, a continuing effort by the probationer, aided by the judge and probation officer, and by family and community, to work out a definite plan for correction of attitude and conduct and making proper readjustments in his home, business and community life, a process of salvaging human materials, of transforming bad-citizen liabilities into good-citizen assets.

SELECTION OF PROBATIONERS

During the year in five states judges were making use of probation under new statutes requiring pre-sentence investigation of offenders, a careful sorting out process to pick those offenders whose deterrence, restraint and reform could be carried on safely outside an institution, with a more or less restricted and supervised freedom in their old environment or a purposefully chosen new one. Courts found that such studied selection lead to fewer failures than resulted from the old ''hunch method'' of selecting or the ''sloppy sentimental'' method. It also enabled judges to extend the use of probation to many whose true character was found to be not habitually in keeping with the nature of the crime committed. In fact, in many courts, pressing to the front was the thought that no offender ought to be committed to an institution until after study had determined that he was an unsafe prospect for probationary treatment. On the other hand, the pre-sentence study of offenders enabled judges to determine the type and approximate duration of institutional treatment needed. Of course, these progressive courts in such intensive pre-sentence studies of offenders, whether to probate or to commit, have definitely abandoned the malignant slogan. ''Make the punishment fit the crime,'' and have taken the advanced social viewpoint that corrective treatment should fit the offender.

QUALIFICATIONS OF PROBATION OFFICERS

More and more in 1933, for this work of selecting out properly the offenders for probationary treatment and for the still more important work of supervising their rehabilitation, judges in progressive courts were demanding the skilled assistance of better qualified probation officers. This demand took the form of higher standards of qualifications for new appointees, of new laws here and there requiring civil service examinations, and perhaps more to the point, the training of officers on the job. Definite courses of study, lecture courses, institutes short but intensive, reading courses and libraries, monthly publications by national and state systems of probation affording information and inspiration, developed during the year. Notable in this training work were New York City, Westchester County, New York, Connecticut, Rhode Island, Newark, Baltimore, Minnesota, Los Angeles County, California, and the Federal System.

PUBLIC APPROVAL AND SUPPORT

The past year has seen probation gain considerably in public approval and support, because it has been interpreted better to the public by judges and probation officers both by word and by administration. The help asked of members of the community in making the pre-sentence studies and in carrying out the plans for the offenders' rehabilitation, together with the publishing of reports upon probation, have more and more convinced the public in general that probation is a corrective process of real value not only to the offender and family but to the community. The most productive probation areas of the country in 1933 were served by judges and probation officers who sought and obtained the advice and cooperation of every public and private welfare agency and of leading men and women in business and professional life.

LOS ANGELES COUNTY COORDINATING COUNCILS

An outstanding example of the productive results of public approval and support was the operation of the Los Angeles County Co-Ordinating Councils; also a similarly organized county, Cumberland County, New Jersey. Kenyon Scudder, Chief Probation Officer in Los Angeles, and Judge F. A. Stanger in New Jersey, have brought school heads and police heads, leaders in religious and character building organizations, health and recreation heads, in fact all leaders in public welfare, into a definite plan of coordinated efforts to correct and to prevent.

NOTABLE PRONOUNCEMENTS ON PROBATION

During 1933 there were several notable public pronouncements on probation. In February, Herbert C. Parson, Commissioner of Probation for Massachunsetts for many years, speaking before the Joint Committee on Probation of the Supreme Bench of Baltimore and the law schools of the Universities of Baltimore and Maryland, uttered the philosophy and convictions of a lifetime in probation work. (Private print, William Stuckert, Chief Probation Officer, Baltimore.) Justin Miller, Dean of the Law School, Duke University, a national leader in penology, speaking in Detroit, in June, at the National Conference of Social Work, gave a situation report on probation from a nation wide survey. (*Year Book, Nat'l Probation Ass'n.*)

''In spite of the depression, continued advance has been made in areas where probation is well and favorably known,'' he said. ''Some increases in staff have been accomplished. Advance has been made in psychiatric service. . . . Outstanding as a demonstration of the value of probation is the Federal system. While recognizing their handicaps, officers in this department are doing convincing work, and education of lawyers and judges has made more progress under their leadership than in the whole previous history of the movement. . . . The use of probation without conviction in non-support cases marks progress . . . . done through the prosecutor's office, without regular steps of criminal procedure, or through the probation department, or both. . . .''

Sanford Bates, Director, Bureau of Prisons, Department of Justice, in October in New York City, before the National Conference of Catholic Charities, evaluated for the country the 1933 brand of probation in an exhaustive and stimulating address on ''Probation After Fifty Years.'' (*Ye News Letter,* Federal probation system, Washington.)

PUBLICATIONS

In addition to the usual *Year Book of the National Probation Association,* a mine of information to the profession, there were five outstanding contributions to the literature of probation: Sheldon Glueck, *Probation and Criminal Justice,* a compendium carrying the best thought of America and Europe; Joseph N. Ulman, of the Supreme Bench of Baltimore, *Judge Takes the Stand,* introspective and stimulating; Edward S. Porter, *Raw Edge,* true-to-life fiction, by a probation executive; Justin Miller, *Adult Probation,* proceedings and findings of an Institute of Probation under the auspices of the University of Southern California, and the highly illuminating opinion written by Chief Justice Charles Evans Hughes in the case of Jimmie Burns *v.* the United States (287 U. S. 216).

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

JUSTICE AND MAINTENANCE OF ORDER

AMERICAN BAR ASSN., Section on Criminal Law, Endicott Bldg., St. Paul, Minn.

AMERICAN CIVIL LIBERTIES UNION, 100 Fifth Ave., New York City.

AMERICAN COUNCIL OF LEARNED SOCIETIES, 597 Fifth Ave., New York City.

AMERICAN INSTITUTE OF CRIMINAL LAW AND CRIMINOLOGY, 357 E. Chicago Ave., Chicago, Ill.

AMERICAN LAW INSTITUTE, 3400 Chestnut Street, Philadelphia, Pa.

AMERICAN PRISON ASSN. OF N. Y., 135 E. 15th St., New York City.

NATIONAL COMMITTEE ON PRISONS AND PRISON LABOR, 250 W. 57th Street, New York City.

National Crime Commission, 120 Broadway, New York City.

National Police Conference, 240 Centre St., New York City.

National Probation Assn., Inc., 450 Seventh Ave., New York City.

National Society of Penal Information, 114 E. 30th St., New York City.

Society for the Prevention of Crime, 177 William St., New York City.

Women's Prison Assn., 110 Second Ave., New York City.

SOCIAL ORGANIZATIONS

American Political Science Association, 205 Bennett Hall, University of Pennsylvania, Philadelphia, Pa.

American Red Cross, 17th between D and E Sts., Washington, D. C.

American Seamen's Friend Society, 72 Wall Street, New York City.

American Society for the Prevention of Cruelty to Animals, 50 Madison Ave., New York City.

Boy's Clubs of America, Inc., 381 Fourth Ave., New York City.

Boy Scouts of America, 2 Park Ave., New York City.

Children's Aid Society, 15 E. 22nd St., New York City.

Civic Forum, 123 W. 43rd St., New York City.

Federal Council of Churches, Etc. —Commission on the Church and Social Service, 105 E. 22nd St., New York City.

Girls' Friendly Society of the U. S. A., 386 Fourth Avenue, New York City.

Girls' Service League of America, 138 E. 19th St., New York City.

Humane Society of New York, 49 Seventh Ave., New York City.

National Catholic Welfare Conference, 1312 Massachusetts Ave., N. W., Washington, D. C.

National Social Work Council, 450 Seventh Ave., New York City.

Thrift League of America, 480 Lexington Ave., New York City.

Young Men's Christian Assn., International Committee, 347 Madison Ave., New York City.

Young Women's Christian Association, 129 E. 52d Street, New York City.

SOCIAL FRATERNITIES

Benevolent and Protective Order of Elks of the U. S. A., 2750 Lake View Ave., Chicago, Ill.

International Assn. of Lions Clubs, 332 S. Michigan Ave., Chicago, Ill.

Kiwanis International, 164 W. Jackson Blvd., Chicago, Ill.

Knights of Columbus, 45 Wall St., New Haven, Conn.

Knights of the Klu Klux Klan, Inc., 2621 Peachtree St., Atlanta, Georgia.

Knights of Pythias, 1054 Security Building, Minneapolis, Minn.

Loyal Order of Moose, Mooseheart, Ill. (Supreme Lodge of the World).

Modern Woodmen of America, 1504 Third Ave., Rock Island, Ill.

Rotary International, 211 W. Wacker Drive, Chicago, Ill.

Sovereign Grand Lodge of the Independent Order of Odd Fellows, 12 West Chase St., Baltimore, Md.

Supreme Council of the Royal Arcanum, 407 Shawmut Ave., Boston, Mass.

Supreme Council, 33° Ancient & Accepted Scottish Rite.—Northern Jurisdiction, 1117 Statler Building, Boston, Mass.—Southern Jurisdiction, 1733 16th St., N.W., Washington, D. C.

Woodmen of the World, Sovereign Camp, 14th and Farman Sts., Omaha, Nebraska.

(SOCIAL) HOME LIFE

Landlords' Cooperative Assn., 18 E. 41st St., New York City.

National Housing Assn., 105 E. 22nd St., New York City.

National Plant, Flower & Fruit Guild, 70 Fifth Ave., New York City.

New York Assn. for Improving the Conditions of the Poor, 105 E. 22nd St., New York City.

(SOCIAL) CHILDREN

Big Brother and Big Sister Federation, Inc., 425 Fourth Ave., New York City.

Big Brother Movement, Inc., 315 Fourth Ave., New York City.

Camp Fire Girls, Inc., 41 Union Square, New York City.

Child Conservation League of America, 318 W. Washington St., Chicago, Ill.
Child Welfare League of America, 130 E. 22nd St., New York City.
Children's Aid Society, 15 E. 22nd St., New York City.
Hebrew Sheltering Guardian Society, Pleasantville, N. Y.
National Child Labor Committee, 419 Fourth Ave., New York City.
National Child Welfare Assn., 70 Fifth Ave. New York City.
Santa Claus Assn., Inc., 152 W. 42nd St., New York City.

(SOCIAL) HEALTH

American Assn. of Social Workers, 130 E. 22nd St., New York City.
American Birth Control League, 689 Madison Ave., New York City.
American Child Health Assn., 450 Seventh Ave., New York City.
American Foundation for the Blind, Inc., 125 E. 46th Street, New York City.
American Humane Assn., 50 Madison Ave., New York City.
American Mission to Lepers, 156 Fifth Ave., New York City.
American Social Hygiene Assn., Inc., 450 Seventh Ave., New York City.
Anti-Profanity League, Ware, Mass.
Better Films, National Council, 70 Fifth Ave., New York City.
Charity Organization Society of the City of New York, 105 E. 22nd St., New York City.
Chicago Crime Commission, 300 W. Adams St., Chicago, Ill.
Cremation Assn. Co. of N. Y., 181 W. 238th St., New York City.
Eugenics Research Assn., Cold Spring Harbor, L. I., N. Y.
National Committee for Mental Hygiene, 450 Seventh Ave., New York City.
National Health Council, 450 Seventh Avenue, New York City.
National Housing Assn., 105 E. 22nd St., New York City.
National Recreation Assn., 315 Fourth Avenue, New York City.
National Save-A-Life League, Inc., 299 Madison Ave., New York City.
New York Society for the Suppression of Vice, 215 W. 22nd St., New York City.
Non-Smokers' Protective League of America, 101 W. 72nd St., New York City.
Travelers' Aid Society of N. Y., 144 E. 44th St., New York City.

(SOCIAL) TEMPERANCE

Anti-Saloon League of America, 150 Fifth Ave., New York City.
National Temperance Society, 289 Fourth Ave., New York City.
World Narcotic Defense Assn., 578 Madison Ave., New York City.

FOUNDATIONS

Carnegie Endowment for International Peace, 2 Jackson Place, Washington, D. C.
Carnegie Foundation, 522 Fifth Ave., New York City.
Carnegie Hero Fund Commission, 2307 Oliver Building, Pittsburgh, Pa.
Carnegie Institution of Washington, 16th and P Sts., N. W., Washington, D. C.
General Education Board, 49 W. 49th Street, New York City.
Guggenheim Foundation, 551 Fifth Ave., New York City.
Hall of Fame for Great Americans, University of the City of New York, New York City.
Moro Educational Foundation, 475 Fifth Ave., New York City.
Rockefeller Foundation, 49 W. 49th Street, New York City.
Rockefeller Institute, York Ave. and 66th St., New York City.
Roosevelt Memorial Assn., 28 E. 20th St., New York City.
Russell Sage Foundation, 130 E. 22nd St., New York City.
Woodrow Wilson Foundation, 6 E. 39th St., New York City.

WOMEN'S WORK AND PROGRESS

American Assn. of University Women, 1634 I St., N. W., Washington, D. C.
American Nurses' Assn., 450 Seventh Ave., New York City.
American Women's Assn., Inc., 353 W. 57th Street, New York City.

General Federation of Women's Clubs, 1734 N St., N. W. Washington, D. C.

Girls Service League of America, 122 East 22nd St., New York City.

National American Woman Suffrage Assn., Grand Central Terminal, New York City.

National Association of Women Painters and Sculptors, 42 W. 57th St., New York City.

National Council of Administrative Women in Education, 1211 Gilpin Ave., Wilmington, Del.

National Council of Women, U. S. A., 4 Park Ave., New York City.

National Federation of College Women, Rolla, Mo.

National League of Women Voters, 532 17th St., N. W., Washington, D. C.

National Woman's Christian Temperance Union, 1730 Chicago Ave., Evanston, Ill.

National Woman's Party, 144 B St., N. E., Washington, D. C.

National Woman's Relief Corps, 64 Spring St., Oberlin, Ohio.

Professional Women's League, Broadway and 73d Street, New York City.

Southern Women's Educational Alliance, 401 Grace-American Building, Richmond, Va.

Women's Educational and Industrial Union, 264 Boylston St., Boston, Mass.

Women's Roosevelt Memorial Assn., Roosevelt House, 28 E. 20th St., New York City.

Women's Trade Union League, 247 Lexington Ave., New York City.

DIVISION XVI

LABOR AND LABOR LEGISLATION

LABOR CONDITIONS AND ORGANIZATIONS

BY ISADOR LUBIN

COMMISSIONER OF LABOR STATISTICS, DEPARTMENT OF LABOR

WAGES

Fall in Union Scale.—From 1932 to 1933, the regular annual survey of the Bureau of Labor Statistics showed, the union scale of wages in the principal time-work trades fell from $1.111 to $1.062 per hour (4.4 per cent). These were the scales established by collective agreement between unions and employers in the industries concerned, as of May 15, 1933. Of the 69 trades covered, 9 showed slight increases in rates over 1932, but the remaining 60 had lower rates than in that year. The railroad employees also accepted a continuance of the 10 per cent deduction made in 1932.

Employment and Payrolls. — The firms reporting on employment and pay rolls each month to the Bureau of Labor Statistics also report on any increases or decreases made in wage rates during the month. During 1932 many such decreases took place; almost no increases were given. This was still the case during the first four months of 1933. In May, however, the number of firms reporting increases was the largest since January, 1930, while the number reporting decreases was the smallest since December, 1930. Progressively great improvement was shown in June and in July, all representing voluntary action by the employers, for the industrial codes had not yet gone into effect.

Per Capita Earnings.—The effect of greater work opportunities was reflected in the per capita earnings, which rose steadily by a few cents each month, from $18.41 per week in April to $20.05 in August. Since that time, however, there has been a decline, the per capita earnings falling to $19.68 in November.

Minimum Wage.—Experience with minimum-wage laws has been rather discouraging, although these laws have attempted only to set minimum rates for women and minors. Early decisions of the Supreme Court had held such laws valid, but beginning with 1923, in a number of decisions involving the constitutionality of state laws, the Supreme Court declared against such laws (Arizona, Arkansas, etc.). Decisions of state courts have in several cases, however, (for instance, North Dakota and Massachusetts) been favorable to the minimum-wage laws. The subject was under discussion in a number of legislatures during 1933, and in 7 states legislation was enacted, making a total of 16 states having some form of minimum-wage law. A much wider use of the minimum wage has come into being under the National Recovery program. One of the most important features of the "codes of fair competition" is the setting of minimum rates for both men and women. In the 195 codes adopted up to the end of 1933, the hourly rates have ranged from 20 to 80 cents, though many of the codes allow variations in rate within an industry, according to geographical area, population, etc.

HOURS OF LABOR

Though there has been a trend of late years toward the shorter working day in individual establishments, there had been no movement of this sort on a national scale. A measure introduced in the 72d Congress, by Senator Black, contemplated national regulation of hours of labor through the prohibition of the shipment in interstate commerce of goods produced in establishments working over 30 hours per week. Extended hearings were held on the bill early in 1933. In the special session in the spring of 1933, however the National Industrial Recovery Act was passed, which provided for the regulation of working hours on a national scale in the individual industries. Under that Act working hours have been shortened considerably in some industries, in less degree in others. There has been considerable agitation for a working week of 30 hours or even less, from such organizations as the American Federation of Labor and from individual economists. The maximum hours set in the industrial codes, however, have ranged generally from 35 to 40, though one industry adopted a 27-hour week and one or two have adopted a 44-hour week. These hours relate to the main body of employees in each industry. Exceptions are allowed for certain types of work or for certain classes of workers, these allowing in some cases for as many as 64 hours per week (in the case of watchmen).

COST OF LIVING

During the first half of 1933 the cost of living declined 2.9 per cent. During the second half of the year, however, there was an increase of 5.2 per cent. Food prices increased 9.1 per cent, clothing 11.5 per cent, fuel and light 7.2 per cent, house furnishings 11.6 per cent, and miscellaneous items 0.7 per cent, while rent, the only item which showed a decrease from July to December, fell 4.3 per cent.

THE EMPLOYMENT SITUATION

Federal Acts and Agencies.—Data collected by the U. S. Bureau of Labor Statistics show that the number of persons employed, which had been falling steadily since late in 1929, continued its downward trend throughout 1932. At the end of the year industrial operations were at an extremely low ebb. The manufacturing industries were employing less than three-fifths as many workers as in 1926, while pay rolls were approximately one-third of the 1926 figure. At the beginning of 1933, therefore, employment was the main object of concern, and the combined efforts of the Nation were bent toward the remedying of the employment situation. The Federal Congress which met in March took the lead with a series of acts providing funds and new machinery for starting the national industrial mechanism again. Among these were the National Industrial Recovery Act, the Federal Emergency Relief Act, the Home Owners' Loan Act, the Farm Credit Act, etc. Under the National Industrial Recovery Act hours of labor have been shortened, and public and civil works projects have been instituted on an enormous scale to give employment to workers without jobs. Beginning in April, 1933, employment began to increase. It grew in volume in the summer months, continuing through September. Between October and December, however, a decline occurred. During October 130,555 persons were given work on projects financed from the $3,300,000,000 public works fund established by Congress. In December (the latest month for which data are available), the number had risen to about 260,000. Many workers, wage earners and salaried employees alike, are also being given employment on civil works projects; the number so employed at the end of the year was nearly 3,500,000.

Economic Planning to Relieve Unemployment.—Many suggestions have been made for measures looking toward a permanent solution of the conditions which produce unemployment. These include national economic planning and unemployment insurance. Under the National Industrial Recovery Act certain steps have been taken which may ultimately lead to planning. As to unemployment insurance, while bills on the subject have been introduced in Congress, no national action has as yet been taken.

Unemployment Insurance.—In January, 1932 the Legislature of Wisconsin passed the first public measure in the United States relating to unemployment insurance. The Act permitted employers in the State to set up voluntary systems. The Act was to become compulsory July 1, 1933 only if a sufficient number of employers failed to set up such systems of unemployment benefits for their labor forces. Early in 1933, however, the effective date of operation was postponed by the legislature until industrial conditions should be more favorable. In December, 1932, a Connecticut commission appointed to study unemployment and the means of alleviating it, reported in favor of a system of dismissal wages rather than of one of unemployment benefits. In Massachusetts and California, on the other hand, similar commissions recommended the establishment of state-compelled unemployment reserves, from which unemployment benefits would be paid. No legislation in this field took place in 1933, but investigative commissions were provided for in Colorado, Illinois, Maine, North Carolina, and Oregon. Unemployment benefits are paid by a small number of national and international trade unions and by many locals. Greater and greater amounts have been paid in such benefits since the beginning of the depression. In 1929 unemployment benefits amounted to $276,718. The report of the executive council of the American Federation of Labor to the 1933 convention shows that during 1932 benefits for this purpose amounted to $19,970,557, more than twice the disbursements in 1931. To do this the working members have assessed themselves heavily, in the attempt to care for their membership without recourse to public assistance.

Coöperative Self-help Projects.—With a view to providing themselves with the employment and the necessaries of life, many groups of unemployed have undertaken coöperative self-help projects. Such groups sprang up rapidly all over the United States during the fall of 1932 and the early spring of 1933, and a number were remarkably successful. A survey of a large number of these self-help groups showed that they had been able, by barter and exchange of services, to supply themselves with a considerable proportion of their food, and smaller amounts of clothing, furniture, etc. Some of these groups have disbanded, but others are still carrying on, in some cases aided by a Federal grant under the Federal Emergency Relief Act.

Unemployment Relief.—Commendable as these efforts are, the number of persons affected is very small when compared with the total population in need of unemployment relief. Enormous sums were made available by Congress, early in 1933, for unemployment relief. It was estimated that, at the time the Federal Emergency Relief Administration was formed, in May, 1933, there were in the United States more than 4,000,000 families receiving relief from Federal funds alone. During August 1933, according to the report of the Administration, 15,150,000 persons or about 12 per cent of the entire population were in receipt of public relief. During the first 8 months of 1933 public funds spent for unemployment relief totaled some $542,000,000, of which the Federal Government contributed $338,000,000 or 62.4 per cent. Very large amounts have also been disbursed by private relief agencies.

BENEFIT AND PENSION PLANS

Benefits.—In addition to the trade-union unemployment benefits, already mentioned, the labor organizations disburse each year large sums in benefits for strikes, sickness, death, old age, certain diseases (such as tuberculosis), permanent disablement, etc. In the past four years (1929-1932) the benefits paid by the trade-unions have risen from some $32,000,000 to more than $51,000,000. The majority of these benefits are on a cash-disbursement rather than an actuarial basis, and the combined effects of decreased membership, decreased employment, and the resultant fall in the income of the unions have made it increasingly clear to many unions that drastic measures are necessary if bankruptcy is to be avoided. As a result some organizations have put some or all of their benefits on an insurance basis, either insuring the risk or carrying it themselves (setting up a special department for the purpose). Others are raising the assessments for benefits, or are curtailing the amount of benefits, or both. In a few instances certain benefits have been abolished altogether.

Old-age Pensions. — Until a few years ago there was no public provision in the form of pensions for aged, dependent citizens. Certain large employers, a number of labor organizations, and a few fraternal organizations, religious sects, etc., were paying old-age pensions to their employees or members, but the total number of persons receiving such aid was infinitesimal as compared with the total number of needy aged in this country. During the period 1916 to 1920 a large number of industrial pension plans were established. The rate slowed down in succeeding years, but another wave of interest in 1929 to 1932 caused the formation of a large number of new plans. The new plans have been mainly on a contributory basis, under which pension rights are accumulated and the status of the employees is materially improved as compared with that under the old type in which pensions were entirely dependent upon the will of the employer. On the other hand, former schemes have been given up at a faster rate than ever before and in many cases benefits have been reduced in plans which were retained. It is estimated that on Jan. 1, 1932, the number of pensioners under these plans appproximated 130,000 and the amount disbursed more than $85,000,000. Old-age pensions paid by labor unions in 1932 amounted to $6,148,302.

The first law providing for a public system of old-age pensions to dependent citizens, which is still on the books, was that of Montana, passed in 1923. The movement, thus begun, was slow in getting under way but has been increasing in momentum during the past few years. The year 1933 witnessed the greatest expansion in any single year. During the year new laws on public old-age pensions were enacted by the legislatures of Arizona, Arkansas, Hawaii, Indiana, Maine, Michigan, Nebraska, North Dakota, Oregon, and Washington, although that of Arkansas has already been declared unconstitutional because of the method of financing provided. In Missouri the constitution was amended to allow the passage of an old-age pension law and in Ohio a referendum law was passed by an overwhelming vote. Thus at the end of 1933 there were pension laws on the statute books of 25 states (not including Arkansas) and 2 territories. In Pennsylvania, a measure was passed by the legislature but did not receive the Governor's signature until after the beginning of 1934. The Colorado and Minnesota laws were amended so as to make them mandatory in form, while in Wisconsin the date of effectiveness of the compulsory provision was postponed until July 1, 1935. Of the state laws on the books at the end of 1933, six are optional with the counties and nineteen mandatory.

Although no general survey has as yet been made for 1933, it seems safe to say, from the experience in those states from which current reports are received, that well over 100,000 persons are at present receiving old-age assistance in the states having public pension laws and that many more will do so when the newly passed state-wide systems go into effect.

LABOR DISPUTES

The year 1928 witnessed the occurrence of the smallest number of industrial disputes (629) in any year since the U. S. Bureau of Labor Statistics began its compilation of strike statistics in 1916. In 1932, during the first 10 months, 735 strikes occurred, whereas in the same period of 1933 the number rose sharply to 1,248. During the first four months of 1933, the number of strikes was roughly about the same as in the corresponding period of 1932. From May to September, 1933, however, an unusually large number occurred (860, as compared with 392 during the same months in 1932), due in large part to protest movements connected with the adoption or proposed adoption of industrial codes in various industries.

LABOR LAWS AND COURT DECISIONS

The year 1933 was marked by the further spread of anti-injunction laws and laws declaring void anti-union (''yellow dog'') contracts. Among the most significant laws affecting labor that were passed in 1933 was the Act of Congress establishing a national system of employment agencies in coöperation with the states. Other important legislation took the form of laws regulating the hours of labor of men in certain industries or employments. Such laws were passed by five states. Eight states legislated on the hours of women and six on those of minors.

Many states passed legislation supplementing the provisions of the National Industrial Recovery Act, several regulated wages on public works, and many measures were adopted to provide assistance and relief to the unemployed.

Housing laws were enacted in six states and Puerto Rico.

Many legislatures passed laws taking advantage of the Cooper-Hawes Act divesting prison-made goods of their interstate character. The importance of such goods as an industrial factor is indicated by a recent study by the Bureau of Labor Statistics which showed a prison population in 1932 of 214,407 and goods produced by these prisoners valued at nearly $76,000,000.

CHILD LABOR

The drive to abolish child labor has been accelerated since the beginning of the depression. The abolition of the employment of children was aimed at under the National Recovery Administration program. Practically all of the codes prohibit the employment of children under 16; generally in hazardous employments 18 is the minimum age. Added impetus has been given also to the lagging child-labor amendment. To the 6 states which had already ratified the amendment, 12 others were added during 1933. The 18 ratifying States are Arizona, Arkansas, California, Colorado, Illinois, Iowa, Michigan, Montana, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Washington, West Virginia, and Wisconsin.

LABOR ORGANIZATION

The high point of membership in the American Federation of Labor was reached in 1920 when its members numbered 4,078,740. After that there was an almost continuous falling off from year to year until 1927, when a rise began which continued through 1930. The depression years, however, caused another downward movement, reaching 2,126,796 in 1933, the lowest point since 1916. Special efforts have been directed toward the organization of the workers in the steel, automobile, textile, oil, and rubber industries. Other important events during the year were the amalgamation of the hatters' and the cloth hat and cap makers' international unions, and the admission into membership in the American Federation of Labor of the most powerful union in the men's clothing industry, the Amalgamated Clothing Workers of America, which was formed by secession from the United Garment Workers in 1914.

XVI. LABOR AND LABOR LEGISLATION

LABOR LEGISLATION

By Irene Osgood Andrews

Associate Secretary, American Association for Labor Legislation

EMPLOYMENT

Especially significant in the extension of legal protection for labor during 1933 is the adoption of codes of fair competition under the National Industrial Recovery Act which restrict child labor, limit hours of service, establish minimum wage levels and otherwise improve the standards and working conditions of labor. Congress established a national public employment office system providing for coöperation with the states. This act creates the United States Employment Service in the Department of Labor and appropriation will be available for the ending June 30, 1934 and $4,000,000 for each of the succeeding four years. One-fourth of the annual appropriation will be available for the expenses of the Federal Employment Service which is authorized to maintain employment offices in states where no employment office systems exist. The remaining three-quarters will be allotted, in proportion to population, to the states which maintain employment office systems in harmony with coöperative standards to be developed under the Federal Service. The National Industrial Recovery Act includes an appropriation of $3,300,000,000 to complete a comprehensive program of public works and construction projects.

SAFETY AND HEALTH

A number of states including Illinois, Michigan, New Hampshire, New Jersey, North Dakota, Ohio, Oregon, Pennsylvania and Washington ratified the national child labor amendment bringing the total number of states ratifying to twenty. Safety regulations were strengthened in several states and New Mexico adopted a comprehensive mine safety code including compulsory rock dusting.

COLLECTIVE BARGAINING

Eight states—Colorado, Idaho, Indiana, Maine, Minnesota, Oregon, Utah and Wyoming—enacted laws drastically restricting the issuance of injunctions in labor disputes. These acts are based on the Federal law of 1932 and with two exceptions include the declaration that ''yellow dog'' contracts are contrary to public policy and unenforceable. In addition, California, Illinois, Massachusetts and Pennsylvania declared ''yellow dog'' contracts null and void.

OLD AGE PENSIONS

In the number of old age pension laws enacted, 1933 was a record year. Ten states—Arizona, Indiana, Maine, Michigan, Nebraska, North Dakota, Ohio, Oregon, Pennsylvania and Washington—and the Territory of Hawaii adopted such legislation. Twenty-seven states and the territories of Alaska and Hawaii now have pensions laws. Moreover, Colorado reënacted its law and Minnesota made its optional law mandatory upon the counties. A law adopted in 1933 by Arkansas was declare unconstitutional because of its peculiar provisions for raising funds.

MINIMUM WAGE

Following President Roosevelt's message on April 12 to the governors of thirteen industrial states urging the enactment of minimum wage laws ''for the protection of the public interest,'' seven states—Connecticut, Illinois, New Hampshire, New Jersey, New York, Ohio and Utah—adopted minimum wage laws for women and minors. This legislation is based on the principle that the minimum wage should be commensurate with the value of the services rendered which was suggested by the Supreme Court when, in 1923, it declared the District of Columbia minimum wage law unconstitutional. (Adkins *v.* Children's Hospital, 261 U. S. 525). These new laws specifically provide that "an oppressive and unreasonable wage" shall mean "a wage which is both less than the fair and reasonable value of the services rendered and less than sufficient to meet the minimum cost of living necessary for health."

UNEMPLOYMENT RESERVES

Compulsory unemployment reserves and insurance bills were introduced in 25 state legislatures, including all of the important industrial states, and in Congress. In seven states such bills were passed by one house while investigating commissions were created in Maine, North Carolina, Oregon, Virginia and New Hampshire. The pioneer unemployment reserves law enacted in Wisconsin in 1932 was amended to postpone the taking effect of the compulsory features until factory employment in the state is 20 per cent greater or factory payrolls 50 per cent greater than in December, 1932, but in no event prior to July 1, 1934. The amendment also provides that the act shall not take compulsory effect if employers of 139,000 employees (instead of 175,000) adopt voluntary plans. Although the rise in employment and payrolls in Wisconsin by October, 1933, had exceeded the requirements of the 1933 amendment, the Industrial Commission decided to withhold its official announcement until March 1, 1934, in order "to carry out the apparent legislative intent and to assure employers a fully adequate opportunity to submit (voluntary) plans for approval."

WORKMEN'S COMPENSATION AND VOCATIONAL REHABILITATION

Amendments to existing workmen's compensation laws were made in a number of states including California, Indiana, Illinois, New Hampshire, New York, North Carolina, Oregon and Wyoming. The principle of double compensation for minors injured when illegally employed was adopted in New Hampshire, Indiana and Utah. The proposed Interstate Workmen's Compensation Act was further revised following extended representative conferences and re-introduced in April, 1933, at the 73rd Congress where it is now pending. The State of Washington for the first time accepted the provision of the Federal Vocational Rehabilitation Act, and Missouri began active coöperation by making its first appropriation for this work. This leaves only three states—Vermont, Delaware and Kansas—which are not participating in the national program for the retraining of industrial cripples.

LABOR IN POLITICS

By David J. Saposs

Brookwood Labor College

INDEPENDENT POLITICAL ACTION

Non-conformist political reactions continued to reveal themselves during 1933. The fall elections registered the defeat of entrenched political machines in many sections of the country. In this continued trend towards political non-conformism, the parties that fostered labor's independent political action also profited. However, their gains were spotted and of a minor nature. In the New York City municipal election the Communist mayoralty candidate polled some 26,564 votes, whereas in the 1929 election its candidate received only 5,622 votes. On the other hand, because of the LaGuardia fusion ticket, the Socialists suffered a tremendous loss. Although their mayoralty candidate and the Socialist party conducted a vigorous campaign, Mr. Solomon was credited with only

63,450 votes. In 1929 the Socialist mayoralty candidate received 175,697 votes. But the Socialists met with better luck in other centers. Their most notable victory occurred in Bridgeport, Conn. Jasper McLevy, a roofer by trade and a Socialist of long standing, was elected mayor by a large plurality that lacked only 2,000 more votes to become a majority. He carried with him the official supporting family consisting of the ten major elective offices. Twelve of the 16 aldermen were also elected, and next year when 12 Republican and Democratic holdover aldermen retire, as provided in the new city charter, the Socialists will be in complete control of the municipality. In other areas the Socialists gained in votes, but did not elect their candidates.

MINNESOTA FARMER-LABOR PARTY

The oscillations in the fortunes of the elements promoting independent political action also resulted in a slight set back for the Minnesota Farmer-Labor Party. Their Minneapolis mayor was defeated in the spring election. This reversal is not regarded as a sign of dissatisfaction with the Farmer-Labor Party as much as a protest against the individual attitude of the Mayor who insisted on a strict enforcement of the prohibition laws. As a matter of fact, Governor Olson, the titular head of the Party, is more popular than ever. In the recent coalition of mid-western governors for the purpose of bringing relief to the farmers, Governor Olson was selected as their spokesman.

NEW POLITICAL ALIGNMENTS

Encouraged by the unrest, some of the elements interested in independent political action formed new organizations with the hope of thereby creating and corralling mass sentiment. The most significant undertaking of this nature is the Continental Congress of Workers and Farmers. Initiated and sponsored by the Socialists Party and Progressive trade unionists, it met with an overwhelming response. Over 4,000 delegates attended. Since then 27 state organizations have been formed. The League for Independent Political Action also sponsored a gathering last summer which gave birth to the Farmer Labor Political Federation. This agency has not the contacts of the Continental Congress but it has energetic leadership. There have also been local attempts at independent political action in competition with the Socialist and Communist parties. These attempts were sponsored by the National Unemployed League, which is dominated by the Conference for Progressive Political Action. The latter organization has recently assumed a new orientation and considers itself the truly American communist expression. It exercises considerable influence among the unemployed in Ohio and a few other areas. There are, therefore, a variety of rival groups of differing shades of radicalism that are valiantly trying to preempt the field of labor's independent political action so as to be on the ground floor when the ground swell occurs.

AMERICAN FEDERATION OF LABOR AND N.R.A.

All the above described elements operated primarily in urban areas, whereas the formidable unrest persisted in the rural areas. Large elements of the workers and other urban groups seemed to bank on the N.R.A. The labor organizations were solidly in back of the Roosevelt administration. The American Federation of Labor and the unions were well satisfied, having received government recognition and appointments to important posts. The strikes in which the workers participated were not in opposition to the N.R.A., but aimed to get the best results under the codes. In so far as the unions were critical of the N.R.A. it was because they wanted to improve the administration and get better results. Indeed, the unions were asking for more government intervention. Most of the important demands featured at the last convention of the Federation can only be achieved through legislation and political power. Thus the Federation wants more direct representation in the administration of the codes and the right to initiate codes. Likewise it has made the 30-hour-week a cardinal demand, and it is committed to press this issue before Congress unless it is taken care of in the codes. The Federation has also reiterated its support of compulsory unemployment insurance. It is, therefore, head over heels in politics. However, a resolution calling for the formation of a labor party received only passing notice, and the non-partisan policy was practically unanimously reendorsed. It seems that as long as the Roosevelt Administration caters to the unions and conditions are at least slightly favorable, it can count on the support of most of the unions. In that event the unions will renew their alliance with the Democratic Party as it existed from 1908 to 1924. Should Roosevelt find it advisable to cater more to business interests, or should conditions fail to improve, then more and more units of organized labor may turn towards some form of radicalism and independent political action.

EMPLOYMENT CONDITIONS

By Sumner H. Slichter

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EFFECTS OF THE RENEWED DEPRESSION AND BUSINESS REVIVAL

Manufacturing and Mining.—Although industrial production reached its lowest point during the depression in July, 1932, it touched the bottom of another downward swing in March, 1933, when the output of manufactures and minerals was 40 per cent below the 1923-1925 average, 52.4 per cent below the high of May, 1929, and only 7.1 per cent above July, 1932. In coal and metalliferous mining, employment in March, 1933, did not quite fall to the low of July, 1932, but, in manufacturing, employment in March was slightly below the level of July, 1932. Following the reaction in March came one of the most pronounced revivals in the history of the country. By October, 1933, employment was 23.5 per cent higher than in October, 1932 in manufacturing; 1.5 per cent higher in bituminous mining, and 33.4 per cent higher in metalliferous mining. In anthracite mining, however, employment in October, 1933, was 11 per cent below October, 1932.

Despite the rapid recovery of production following the banking holiday in March, employment gained only at a moderate rate. This was partly a result of the fact that it was unnecessary to increase man-hours worked in proportion to the increase in output and partly to the fact that man-hours were largely increased by lengthening the working week rather than by hiring additional men. Thus while factory output increased by 67.2 per cent between March and July, average hours worked per week in manufacturing increased by 32.3 per cent and employment only by 22.1 per cent. Beginning with July, however, most workers in the country were brought under either the President's Reemployment Agreement or the codes. These imposed, as a general rule, a maximum working week of 40 hours. As a result of this restriction of hours, employment continued to increase throughout the temporary recession in production which began during August and continued into November. According to the Federal Reserve Board's index (which probably presents an exaggerated picture of fluctuations in output), factory production was 20.6 per cent lower in October than in July. Between July and October, the average working week in manufacturing decreased by 15 per cent, while employment increased by 10 per cent. In anthracite mining employment gained in the same period 29.9 per cent; in bituminous mining, 7.6 per cent; in metalliferous mining, 19.1 per cent.

All branches of manufacturing shared in the gain in employment between March and October, but the extreme low spots of the depression continued to be concentrated in the capital-goods industries and in certain consumers'-goods industries which make luxury products, as is shown by the following examples:

	Decrease in Employment Oct. 1929 to Oct. 1933 Per Cent
Iron and steel	18.6
Lumber and its products	42.2
Machine tools	64.7
Agricultural implements	66.7
Electrical equipment	50.3
Cement	53.0
Automobiles	43.9

Building Construction.—Recovery was begun in the building trades in April, 1933, by an increase in privately financed projects, both residential and non-residential, but this gain was slight in comparison with the unusually severe and increasing depression from which the industry had been suffering. Residential contracts, which in 1932 were 85.4 per cent below 1929, were, during the first 11 months of 1933, 18.5 per cent below even the corresponding period in 1932, although 22.7 per cent higher in November, 1933, than in November, 1932. In September, publicly financed construction, which had recovered somewhat from its low in April, turned sharply upward as the $3,300,000,000 Federal public works program began to take effect. However, as late as Nov. 25, the value of contracts awarded under the public works program only totalled $437,171,467 and the number of men directly employed on these projects was 248,571. Because of the time required for the Federal program to become effective and because of the slackening during the late summer in the gains in privately financed construction, total contracts awarded in all classes of construction were 19.9 per cent lower during the first 11 months of 1933 than during the corresponding period in 1932, and only 3.1 per cent higher in November, 1933, than in November, 1932.

Railroads.—The increase in railroad traffic which commenced immediately after the low caused by the banking holiday in March was so rapid that in June the railroads of the country, taken as a whole, began to operate at a profit once more and continued to do so through October. As a result, the drastic curtailment of service and maintenance which had been going on throughout 1931 and 1932 was checked, and a slight but steady increase in employment began. In September, 1933, railroad employment, though still 46.8 per cent below September, 1929, was 3.4 per cent above September, 1932, and 12 per cent above the low of March, 1933.

Farms.—The improvement in industrial employment checked the movement back to the farms, which began on a small scale in 1930 and reached a climax in 1931 and early in 1932. Although farm population on January 1, 1933, is estimated to have been 32,242,000, the highest figure ever attained, the movement from city to farm declined during the latter part of 1932. The increase in the rural population during 1932 was due to a higher birth rate and to a sharp decrease in the number of persons going from farm to city, as the following figures show:

	1931	1932	Change between 1931 and 1932
Number going to farms	1,683,000	1,544,000	−139,000
Number going to cities	1,469,000	1,011,000	+458,000
Natural increase in population	422,000	468,000	+26,000
Net change in rural population	656,000	1,001,000	+345,000

No estimates of farm population are as yet available for 1933, but the rate of increase has probably slowed down to a considerable degree, because of the effect of the business recovery in accelerating the pre-existing decline in the movement from city to farm and in bringing back to the cities unemployed persons who were receiving temporary support on farms. Between October, 1932, and October, 1933, the index of supply of farm labor declined by 9.9 per cent, while that of demand for farm labor rose by 12 per cent. Nevertheless, during the same period the number of family members and of hired laborers employed on the farms of the Department of Agriculture's crop reporters decreased by 2.6 per cent and 3.7 per cent respectively.

Public Utilities, Trade and Hotels.—Among the steadiest branches of business are public utilities, wholesaling, retailing, and hotels, all of which cater to a demand which is immediate and cannot easily be postponed. Nevertheless, under the great pressure to reduce expenses, to cut maintenance and repairs, and to delay extensions and improvements, employment in these industries dropped slowly throughout the depression. In retailing and wholesaling, employment recovered to a considerable extent between October, 1932 and October, 1933, but in the public utility and hotel industries it experienced little or no improvement.

	Change in Employment from October to October		
	1930–1931	1931–1932	1932–1933
	Per Cent	Per Cent	Per Cent
Telephone and telegraph	−11.0	−9.4	−9.8
Power and light	−11.5	−13.8	+2.9
Electric railroads and motor-bus	−9.1	−12.6	−2.4
Wholesale trade	−9.6	−8.7	+7.3
Retail trade	−6.0	−9.5	+10.2
Hotels	−10.4	−13.7	+2.1

Part-time Employment.—The tendency to avoid lay-offs by spreading work, which has been characteristic of this depression to an unexampled extent, had largely spent itself by the summer of 1932. The reports of the National Industrial Conference Board indicated a drop of only 6.1 per cent in average working hours in manufacturing between February, 1932 and February, 1933, although because of the abnormal conditions created by the banking holiday the drop between March, 1932, and March, 1933, was 11 per cent. It is probable, therefore, that the situation in the spring of 1933 was much the same as that revealed by a survey of the U. S. Department of Labor in March, 1932, when 56.1 per cent of all workers and 63 per cent of workers in manufacturing were found to be on part time. As has been said, the recovery in employment which began in April, 1933, at first largely took the form of increased working hours, and average hours per week in manufacturing rose from 32.2 in March to 42.6 in July. However, since the prevailing limitation in the codes and the President's Reemployment Agreement was 40 hours a week, the average hours per week in manufacturing dropped from 42.6 in July to 36.2 in October. The effect of the shorter working week was particularly pronounced in banking, insurance, wholesaling, retailing and public utilities, where there had been relatively little sharing of work.

VOLUME OF UNEMPLOYMENT

Trends and Comparisons. — Satisfactory figures on the volume of unemployment are lacking. It is necessary to construct estimates on the basis of the census of April, 1930, the special census in 19 important cities early in 1931, and the employment returns from different industries. The American Federation of Labor estimated the volume of unemployment as 12,300,000 in July, 1932, 13,689,000 in March, 1933, and in October as 10,076,000, minus persons afforded temporary employment by the Civil Works Administration and the Civilian Conservation Corps. This would indicate a gain in employment of approximately 3,500,000 between March and October, 1933. By the middle of December approximately 4,000,000 persons were receiving temporary employment on civil works projects. A deduction should be made from the A. F. of L. estimate of unemployment to allow for the large number of persons who have become unemployable during the long depression. Naturally it is difficult to draw a sharp line between those who are employable and those who are unemployable, particularly in view of the fact that many fall in the latter class simply because employers are unwilling, except in case of acute labor shortage, to hire men in the higher age brackets. A further deduction from the A. F. of L. estimate should be made to allow for persons absorbed through the return to farming and the multiplication during depression of small independent businesses. The number of jobs so created may well exceed 1,000,000, but the data necessary for an accurate estimate are not available. Many of these jobs are temporary makeshifts, for the holders expect to return to their regular occupations when business revives. Any estimate of unemployment must be exceedingly crude, but it is probable that the number of employable men who are either unemployed, or who have only temporary employment on Civil Works or in the Civilian Conservation Corps, is closer to 8,000,000 than the A. F. of L. estimate of 10,000,000.

Trade Union Returns. — The returns of the American Federation of Labor show the following unemployment rates among trade union members:

	All	Building	Metal	Printing	Other
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
January–October:					
1929	11.5	24.8	6.6	3.9	8.0
1930	21.5	39.0	19.3	6.4	13.7
1931	25.9	50.6	29.6	12.1	16.4
1932	31.6	63.4	41.0	18.9	19.9
1933	31.8	67.6	44.8	22.0	19.7
October, 1932	31.0	65.0	46.0	20.0	18.0
March, 1933	34.0	72.0	49.0	22.0	22.0
October, 1933	27.0	62.0	36.0	21.0	17.0

EFFORTS TO RELIEVE OR REDUCE UNEMPLOYMENT

The Effect of the National Recovery Administration.—The slackening in spread work movement after the spring of 1933, which has already been mentioned, resulted from the refusal of many concerns, particularly small ones, to participate. Such concerns were able to make deep wage cuts, because even low hourly rates enabled their employees to earn more per week than the employees of enterprises which were sharing work. On the other hand, enterprises which had cut hours found themselves hampered by that fact in cutting wages. By the spring of 1933, many establishments practicing work spreading were paying nearly twice the hourly rates of non-spreading competitors. As a result, the spread work movement had begun to break down even before the revival in business began. Some enterprises had laid off men and increased the working hours of the remaining employees in order to cut wages, and other firms were on the point of doing so. The danger that hundreds of thousands of men might be added to the totally unemployed and a new cycle of wage cutting begun was one reason why prominent industrialists, such as Mr. Sloan, Mr. Teagle and Mr. Swope, endorsed the principle of limiting working hours by Federal law at the hearings on the Black Bill. Moreover, the large numbers of men who had been out of work for two years or more by the spring of 1933, and the many youths of working age who had never had regular employment since leaving school, made the problem of absorbing the unemployed particularly urgent. Limitation of working hours was needed, not only to prevent lay-offs and wage cutting, but to put some of the unemployed back to work and to spread the benefits of business revival, if and when it came, as promptly and widely as possible among those who had suffered most from the depression. Of the gain of 3,500,000 in employment between March and October, roughly half is attributable to the improvement in business and half to the renewed spreading of work under the prevailing 40-hour limitation of the codes and the P. R. A.

The Federal Emergency Relief Administration. — The most striking change in the relief situation has been the growing assumption of responsibility by the Federal Government. As part of the "New Deal" legislation, a Federal Emergency Relief Administration was created by Congress in May. On June 1 the Federal Emergency Relief Administration took over the responsibility for the relief situation from the Reconstruction Finance Corporation, which had by then exhausted the $300,000,000 fund appropriated during the summer of 1932 for loans by it to the states. The Federal Emergency Relief Administration was granted a fund of $500,000,000 to be given outright to the states and their subdivisions. Half was to be given in sums matching one-third of the expenditure for relief in the locality and the rest simply on the basis of need. After November first all grants were made on the latter basis, as half of the fund had by then been allocated on the matching principle. The Federal Relief Administrator was also empowered to take over the relief administration in any state, should this prove necessary in the interests of efficiency, and early in November he did assume control in Kentucky, following the breakdown of relief there. In September, the President took the further step of authorizing the formation of a Federal Surplus Relief Corporation to buy agricultural products and distribute them to the unemployed, with funds obtained half from the Federal Emergency Relief Administration and half from the processing taxes of the Agricultural Adjustment Administration. In localities where relief standards are inadequate, these products are to be given in addition to previous relief grants. The Federal Emergency Relief Administration has made a real effort to raise standards of relief. The Administrator estimates relief needs at $1,000,000,000 a year and expects the $500,000,000 fund to be exhausted about March fifteenth.

The Public Works Administration. —By the second section of the National Industrial Recovery Act, a Public Works Administration was created and a fund of $3,300,000,000 made available for its purposes. However, because of the time required to prepare and investigate projects and to prepare specifications and contracts, the program did not affect the construction industry to any noticeable extent until September. The greatest effect will be in 1934. At least partly as a result of this delay, the President announced the formation early in November of the Civil Works Administration, under which before Dec. 15 4,000,000 men had been taken off the relief rolls and employed on various civil works projects. By Feb. 15, 1934 about $700,000,000 will have been expended by the Civil Works Administration, $400,000,000 having been obtained from the Public Works Administration, $100,000,000 from Federal Emergency Relief Administration, and $200,000,000 from the States. As the allocation of this money almost completed the exhaustion of the Public Works Administration fund, further appropriations by Congress will be necessary if the projects are to be continued.

Permanent Changes.—Little progress was made during 1933 in making permanent provision for dealing with unemployment. Bills providing for compulsory unemployment insurance were introduced into Congress and 25 state legislatures, including those of all the important industrial states, but none was adopted. The bills passed one House in seven states—California, Connecticut, Maryland, Minnesota, New York, Ohio and Utah—and investigating commissions were created in Maine, New Hampshire, North Carolina and Oregon. The greatest advance was the adoption in June of the Wagner Bill creating a United States Employment Service. All the old Federal employment offices were closed during the summer, save the special veterans' exchanges, and a new system of Federal-State offices, which may constitute an important advance in the organization of the labor market, is in process of development.

MEDIATION AND ARBITRATION IN INDUSTRIAL DISPUTES

By Isador Lubin

Commissioner of Labor Statistics, Department of Labor

FEDERAL INDUSTRIAL DISPUTES

The National Labor Board was established in August, 1933, under the National Recovery Program, to act in disputes arising in connection with the interpretation of the President's Reemployment Agreement. Its membership, announced on Aug. 5, 1933, included the following: Senator Robert F. Wagner, chairman; Dr. Leo Wolman, Walter C. Teagle, William Green, John L. Lewis, Gerard Swope, and Louis E. Kirstein. The duties of the Board were set forth as follows: "This board will consider, adjust, and settle differences and controversies that may arise through differing interpretations of the President's Reemployment Agreement and will act with all possible dispatch in making known their findings. In return, employers and employees are asked to take no disturbing action pending hearings and final decision. This board will promptly proceed to establish such central and local organizations as it may require to settle on the ground, such differences as arise in various parts of the country."

On Dec. 16, 1933, the President ordered that the National Labor Board "shall continue to adjust all industrial disputes whether arising out of interpretation and operation of the President's Reemployment Agreement or any duly approved industrial code of fair competition, and to compose all conflicts threatening the industrial peace of the country." All action already taken by the Board in the discharge of its duties was ratified and approved by the President. The powers and functions of the National Labor Board are outlined in this order as specifically including mediation, conciliation or arbitration of all controversies between employers and employees which tend to impede the purposes of the National Industrial Recovery Act, provided that where a means of settlement is provided by agreement, codes, or law, the Board may decline to take cognizance of any controversy, if existing power has not been invoked.

Regional Boards.—Under the order creating the new agency the Board was granted power to establish regional boards which should operate under the supervision of the central body in such matters as might reasonably be adjusted in the local areas in which they arise. A total of 17 Regional Boards and one sub-board had been established at the end of 1933, as follows: Regional Labor Boards in the cities of Atlanta, Boston, Buffalo, Chicago, Cleveland, Detroit, Indianapolis, Los Angeles, Minneapolis, Newark, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco and Seattle, and the sub-board in Toledo. Membership of the local boards must at all times include equal representation of employers and employees and an impartial chairman. The duties of the Regional Labor Boards are as follows: "(1) To bring about settlements by mediation, conciliation or arbitration of all disputes between employers and employees in the region in which the board is situated, involving the interpretation and application of the President's Reemployment Agreement and the industrial codes of fair competition or which otherwise affect the national program of economic recovery; (2) To hear and determine all violations of the labor provisions of the industrial codes of fair competition that are submitted to it, except such violations as, in the opinion of the regional board, should be referred to a compliance board or a regional director of compliance for consideration, and, (3) To arbitrate all differences which have been jointly submitted to the board for arbitration.''

All cases which, by reason of their scope and nature, are not amenable to local conciliation, are to be referred to the National Labor Board, as are also cases in which a Regional Labor Board is unable to bring about an agreement or settlement. The National Labor Board reserves the right to review all decisions of Regional Labor Boards relating to violation of the President's Reemployment Agreement and codes of fair competition. To insure uniformity of interpretation all questions of law must be submitted to the National Labor Board.

Cases.—A total of 600,000 persons was involved in cases handled by the National Labor Board and Regional Labor Boards during the period from their inception to the end of 1933, Senator Wagner has reported. Of this number 350,000 persons were involved in National Labor Board cases up to Dec. 15 and about 220,000 in Regional Labor Board cases. Subsequently 120,000 persons were added. Thus, with an allowance for duplications, the figure of 600,000 is arrived at.

Code Boards.—Under some of the codes of fair competition adopted under the National Recovery Administration, certain boards to deal with labor matters in the industry have been set up. Thus a labor policy board has been formed under the petroleum code, to advise the Oil Administrator on matters affecting workers in the oil industry, and in the motor-bus industry regional boards on industrial relations are being established. Other industries which have adopted codes are taking or planning to take similar action. As was noted above, cases of dispute which can be settled by these boards do not have to be referred to the National Labor Board.

A Board of Labor Review has also been organized to function as part of the public works program, its duties being to hear all cases arising under contracts financed from public works funds. Its decisions are binding upon the parties concerned. Labor and the contractors each have a representative on the Board, the third member (chairman) being a representative of the Federal Emergency Administration of Public Works. It is planned that the Board shall have representatives in different sections of the country.

Conciliation Service.—The work of the Conciliation Service of the Department of Labor is that of mediation in labor disputes, generally entering the labor controversy at the request of the parties concerned or of the public affected. The first step of the representative is to learn the grievance and demands of each side. His efforts are directed toward the adjustment of disputes while plant operation continues. During the fiscal year ended June 30, 1933, 1,044 cases of trade disputes, strikes, threatened strikes, and lockouts were handled by the Conciliation Service. Of this number (which includes 85 cases pending at the close of the previous fiscal year) 438 were satisfactorily adjusted. These cases came from 45 states and the District of Columbia, and involved directly or indirectly 397,295 employees. Since the creation of the Department of Labor in 1913, the Conciliation Service has handled 11,990 labor disputes, involving 14,265,367 employees.

STATE INDUSTRIAL DISPUTES

During 1933, 12 cases were submitted to The Industrial Commission of Colorado by employers. In all instances these requested decreases in the wages of their employees, but all were disapproved by the Commission. The Commission was established in 1915 and acts in controversies affecting employers and workers within the State.

PRINTING TRADES

Twelve disputes in the printing industry were submitted to arbitration during the year. These involved the typographical workers of New York City, Houston, El Paso, Baltimore, Cincinnati, Denver, Dunellen (N. J.), Cleveland, Memphis, Detroit, mailers of Cleveland, and the printing pressmen of Chicago. In every case wages were in dispute, the employers demanding lower pay rates and the workers requesting either an increase or the continuance of the existing scale. In Houston, Cincinnati, and Memphis the existing rate was continued, while in Cleveland the mailers were awarded an increase in rates. In all of the other cases reductions of varying amounts were ordered.

STREET RAILWAYS

Only two instances of arbitration in the street-railway industry during 1933 have come to our attention. These involved the street-railway companies and their employees in Gary, Ind., and in Boston. Both of these resulted in increased rates for the workers.

RAILROAD DISPUTES

The United States Board of Railroad Mediation was constituted under the terms of the Railroad Labor Act of 1926, to handle cases of dispute which the carriers and their employees have been unable to settle in conference. When disputes between carriers and their employees cannot be settled through mediation proceedings, the law directs that the Board of Mediation shall endeavor to induce the parties to submit their controversy to arbitration. In case all these efforts fail, and the Board of Mediation believes the controversy may result in serious interruption of interstate commerce, the President of the United States may appoint an emergency board to make an investigation and report its findings. There is, however, nothing savoring of compulsory arbitration in the act. Thus far six emergency boards have been appointed, the sixth being the board appointed June 12, 1933, to investigate the dispute between the Kansas City Southern Railway and its train-service employees.

Cases and Adjustments. — The Board of Mediation began operations in July, 1926, since which time 845 cases involving requested changes in rates of pay, rules, or working conditions have been submitted. During this period the Board has also received 1,268 cases involving grievances or differences arising out of the interpretation or application of existing agreements which could not be decided by the local adjustment boards. During the fiscal year ended June 30, 1933, the Board acted upon 344 cases involving grievances or differences arising out of the interpretation or application of existing agreements concerning rates of pay, rules, or working conditions. Of these 344 cases, 107 were settled through mediation, 4 were withdrawn before mediation had been instituted, 9 were withdrawn for other reasons, 96 were closed or retired by action of the Board, and one was settled before arbitrators were named. During the same period the Board acted upon 95 other cases involving rates of pay, rules, or working conditions; of these 23 were settled through mediation, 3 were submitted to arbitration, 14 were withdrawn through mediation, 3 were withdrawn before mediation had been instituted, 6 were withdrawn for other reasons, and 46 were closed or retired by action of the Board.

CHILD LABOR

By Courtenay Dinwiddie

General Secretary, National Child Labor Committee

CHILDREN IN SWEATSHOPS

Throughout the winter and spring the depression, although reducing the total amount of child employment, acted to depress wages and lengthen working hours and gave continued impetus to the employment of children and young girls under sweatshop conditions. Investigations were carried on in the garment industry of the eastern industrial states by Federal and State Labor Departments, National and State Consumers' Leagues, and the National Child Labor Committee. In several Connecticut shirt factories one-fifth of the employees, and in one Pennsylvania plant 30 per cent, were found to be children 14 or 15 years of age. Sweatshop abuses of child workers, reported by agents of the National Child Labor Committee, included unwarranted deductions from pay envelopes; loss of wages through the disappearance of the employer, or through discharge on completion of unpaid "learning" period; illegally long hours of work; bad sanitary conditions, and insulting treatment of girls by employers and foremen.

In a series of spectacular strikes in Pennsylvania shirt factories, child workers played a prominent part. These young strikers, including many children under 16, had been receiving $1 to $5 for a full week's work. In many cases the fathers had been unemployed for months or years, and the families were subsisting on the child's earnings supplemented by public relief. The Pennsylvania Legislature appointed a Sweatshop Committee which held hearings on conditions of child employment and formulated a legislative program.

In June, the Federal Department of Labor conducted a quick survey of the shirt industry involving the examination of 20,000 pay-roll records in nine states. Half of the workers earned less than $7.40 in a busy week. The median of earnings was highest in New York, $9, and lowest in Delaware, $5.50. Maryland, Pennsylvania, Missouri, Indiana, Connecticut, New Jersey and Massachusetts fell between in ascending order. In one Pennsylvania factory half of all the women workers were earning less than $2 a week. A high percentage of child workers was found in both Connecticut and Pennsylvania.

NEW STATE LEGISLATION

The passage during 1933 of mandatory minimum wage laws for women and minors by seven state legislatures represented a determined effort by the states to take action against sweatshop conditions. First, New York and Utah, then New Hampshire, New Jersey, Connecticut, Ohio and Illinois, enacted minimum wage legislation. Massachusetts strengthened its minimum wage law. Two states, Utah and Wisconsin, raised the age for employment of children during school hours to 16 years, and Utah strengthened its child labor provisions relating to work permits, dangerous employment, night work, and maximum working hours. Three states, Indiana, New Hampshire, and Utah, amended their workmen's compensation laws to provide for the payment of double compensation to minors injured while illegally employed. Connecticut passed a bill placing tenement home workers under the child labor and working hours laws, with stringent licensing provisions; and also improved its work permit regulations. Laws regulating night work or maximum working hours for minors or for women and girls were strengthened in Connecticut, Indiana, Massachusetts (leather manufacturing), Minnesota, New Mexico, and Texas.

N.R.A. CODES

The Cotton Textile Code.—During the summer and fall, with the inception of the industrial codes under the National Recovery Act, came an effective, if temporary, ban on child employment in many of the industries which had most notoriously exploited child workers. The first code to be acted upon, that for the cotton textile industry, originally contained no child labor provision, the manufacturers contending that the establishment of a minimum wage would be sufficient to exclude child workers. There was a vigorous popular demand, in which the National Child Labor Committee took the lead, for the insertion of a child labor clause. Finally, on the motion of the manufacturers themselves, a prohibition of the employment of children under 16 years of age in cotton textile mills was included.

Blanket Code.—When the President's Reemployment Agreement, known as the blanket code, appeared, it contained an exemption from the general 16-year age minimum for employment which allowed children of 14 and 15 years to work in non-manufacturing occupations for three hours a day, but not during school hours or between 7 p. m. and 7 a. m. Even with the exemptions, however, the blanket code set a higher standard than most state child labor laws.

Age for Employment.—Of the 99 codes approved up to Nov. 5, 1933, fifty-seven provided a straight 16-year age minimum for employment. These included a number of non-manufacturing industries such as banking, stock exchange firms, motor vehicle retailing and the transit industry. Only two of the approved codes contained exemptions showing the employment of children under 16. One of these was the code for legitimate theatres, which allowed children under 16 to appear as actors in rôles requiring children. The other was the code for the retail trade (including the retail drug trade), which allowed children 14 and 15 years of age to work three hours a day (or one 8-hour day a week), but not between 7 p. m. and 7 a. m., or during school hours or in delivering merchandise from motor vehicles. The remaining 40 approved codes provided for a higher minimum age for employment in hazardous occupations.

Hazardous Occupations.—Eight of the codes approved before Nov. 5th, primarily as a protection against hazardous work, established 18 years as the minimum for all employment in the industry, or for all factory and manufacturing employment. An 18-year minimum for unhealthful or hazardous work (such as operating metal or woodworking machines) was provided in the codes for eight industries: asphalt shingle and roofing, builders' supplies, coat and suit, copper and brass mill products, electric storage and wet primary batteries, lumber and timber products, office equipment manufacturing and plumbago crusibles. The bituminous coal code, which as originally presented contained only a 15-year age minimum for employment underground, in final draft prohibited children under 16 from all employment in the industry, and children under 17 from working underground or in hazardous occupations above ground. The code for the salt producing industry prohibited minors under 21 from underground employment, and that for the motor bus industry prohibited the employment of minors under 21 as bus drivers. On the other hand, the codes for a number of industries involving some of the most hazardous types of work, notably the iron and steel industry, were among those providing no protection beyond the general 16-year minimum for employment.

The Newspaper Code. — The Code submitted by the newspaper publishers contained an exemption allowing children of any age to be employed in the sale or delivery of newspapers at any hour of the day or night except during school hours, in addition to proposing the continuance of the blanket code exemption for children between 14 and 16 working three hours a day in non-manufacturing departments. At the hearing on this code, objection to such sweeping exemptions was expressed by the Federal Children's Bureau, International Typographical Union and other organizations. The National Child Labor Committee proposed a substitute clause to replace these two exemptions which would set 14 years as the minimum age for newsboys and to prohibit night work for boys under 16 years between 7 p. m. and 7 a. m. The newspaper publishers' code was still held under advisement by the N.R.A. at this writing (Nov. 1, 1933).

Sugar Beet Workers.—At the August hearing on the Sugar Stabilization Agreement (later rejected), a staff member of the National Child Labor Committee reported from recent observations in Colorado the prevalence of child labor, the 12-hour day and bad working and living conditions in the beet fields. In the families visited the average annual income from beets had fallen to $53 per individual member of family, and to $78 per worker, in spite of the fact that most of the children were working in the fields by the time they were eight years of age. Opportunities for supplementary work on other crops or in the cities had dwindled, and most of the families subsisted during the winter on Federal relief. Corroborating evidence was presented by the Federal Children's Bureau and the Federal Emergency Relief Administration. It was asked that any sugar agreement include provisions prohibiting child labor in the beet fields and assuring the beet workers decent working conditions and a minimum living wage. No sugar agreement had been signed up to Nov. 1st, however, and the beet harvest proceeded as usual, without improvement in laboring conditions.

Effect of Codes.—About 100,000 children under 16 years of age were released from employment for school attendance during the fall of 1933 as a result of the National Recovery Program, and probably 50,000 minors between 16 and 18 years of age were removed from hazardous occupations. Minors over 16 who remained in industry received the benefits of minimum wage rates and of the shortened working hours under the codes. It was estimated, however, that 100,000 children under 16 employed as hired hands in commercialized agriculture, 100,000 as newsboys, and 40,000 as domestic servants, had not been brought under the recovery program. The child labor provisions of the industrial codes were received with general approval. To meet cases of individual hardship resulting from the removal of children from industry, the Federal Emergency Relief Administration announced that employment should be found for older members of the family or direct relief provided.

FEDERAL CHILD LABOR AMENDMENT

The temporary nature of the National Recovery Act stimulated new interest in the pending Federal Child Labor Amendment as a means for ensuring the permanency of Federal control over child labor. The Child Labor Amendment was passed by Congress in 1924 after the U. S. Supreme Court had twice declared a Federal child labor law unconstitutional. It was formulated as an enabling amendment, giving Congress the power to ''limit, regulate and prohibit the labor of persons under 18 years of age.'' The upper age limit was placed at 18 years in order to allow for the protection of children 16 and 17 years of age from hazardous conditions of employment, as many State laws have done. No time was set for ratification. Until January, 1933, it had been ratified by only six states (Arizona, Arkansas, California, Colorado, Montana and Wisconsin). During 1933, nine additional states ratified (Illinois, Michigan, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Oregon and Washington) bringing the total number of ratifications to fifteen. Vigorous campaigns were undertaken in other states with a view to securing the total of 36 ratifications necessary for adoption of the Amendment before expiration of the National Recovery Act.

CONFERENCES

The United States Children's Bureau held a conference on Present-Day Child Labor Problems Dec. 10, 1932, at which representatives of some twenty national organizations agreed upon a legislative program focused around the establishment of 16 years as the minimum age for employment, the reduction of working hours, and the adoption of measures to curb sweatshop conditions.

The National Child Labor Committee held its annual conference in the form of a luncheon meeting on the general subject of a minimum wage for minors, at Detroit, June 13th, in connection with the National Conference of Social Work. Grace Abbott of the Children's Bureau and Lucy Randolph Mason of the National Consumers' League were the principal speakers.

NEW PUBLICATIONS

United States Bureau of the Census, Fifteenth Census, 1930.
- *Children in Gainful Occupations.* 1933.

United States Children's Bureau, Washington, D. C.
- *Employed Boys and Girls in Rochester and Utica, New York.* By Alice Channing.
- *N.R.A. Code Provisions affecting the Employment of Minors* (Mimeographed, loose leaf, by codes).
- *Report of Advisory Committee on Employment of Minors in Hazardous Occupations.*
- *Twentieth Annual Report of the Chief of the Children's Bureau,* Fiscal Year Ended June 30, 1932.

National Child Labor Committee, New York, N. Y.
- *The American Child* (published monthly).
- *When Children Are Injured in Industry*: Report of a Follow-up Study of 167 Children Injured in Industrial Accidents in Tennessee, Illinois, and Wisconsin. By Charles E. Gibbons, C. T. Stansbury, and Gertrude Folks Zimand.
- *Child Labor Legislation* — 1933 (mimeographed).
- *Memorandum on Exploitation of Children in Sweatshops* (mimeographed).
- *Statement on Conditions Relating to Sugar Beet Workers in Colorado.* Submitted by Charles E. Gibbons at the Hearing on the Sugar Stabilization Agreement, Washington, D. C., Aug. 11, 1933 (mimeographed).
- *The Rise and Fall of Child Labor in 1933:* Annual Report for year ending Sept. 30, 1933. By Courtenay Dinwiddie.
- *American Child,* December Supplement, 1933.
- *Statement on Paragraph 3 of the Newspaper Publishers' Code.* Submitted by Courtenay Dinwiddie at the Hearing on Sept. 23, 1933 (mimeographed).

WORKMEN'S COMPENSATION AND INSURANCE

BY JOHN B. ANDREWS

SECRETARY, AMERICAN ASSOCIATION FOR LABOR LEGISLATION

LEGISLATION

Notable gains in the field of social insurance legislation were made in 1933. Compulsory unemployment reserves and insurance continued to be a leading issue in more than half of the states which met in regular legislative session. Improving amendments to the workmen's compensation laws were made in a number of states but Arkansas, Florida and South Carolina adjourned without adopting this much needed protection for industrial accidents. Mississippi, the fourth remaining non-compensation state, did not meet in legislative session. Interesting is the extension of the workmen's compensation principle in the non-compensation area through the adoption under the National Industrial Recovery Act of a number of codes of fair competition which require employers in states which do not have workmen's compensation laws to compensate injured employees according to the provisions of the U. S. Employee's Compensation Act. The Federal Longshoremen's Act already applies to longshoremen and ship repairmen in these four states when injured on navigable waters. The proposed Interstate Workmen's Compensation Act was further revised following extended conferences with representatives of groups directly affected and re-introduced in April, 1933, at the 73rd Congress where it is now pending. With the enactment of old age pension laws in nine states and the Territory of Hawaii, 25 states and two territories have now adopted this legislation. In California, a Senate committee was created to investigate the feasibility of health insurance.

WORKMEN'S COMPENSATION

The California law was amended to secure the payment of awards against insolvent self-insurers and to provide a more suitable method of determining wage earning capacity of employees who, because of the depression, are compelled to work only part time. In New Hampshire, medical care was extended and benefits were made applicable to state employees. The principle of double compensation for minors injured when illegally employed was adopted in New Hampshire, Indiana and Utah. New York removed the time limit upon reclassification of disability, which has been a source of great difficulty, and in connection therewith provided for the payment of awards in certain cases out of a special fund. Oregon made extensive changes, and Illinois, Minnesota, New Jersey, North Carolina and Wyoming were among the states which likewise adopted amendments.

OLD AGE PENSIONS

Ten states — Arizona, Indiana, Maine, Michigan, Nebraska, North Dakota, Ohio, Oregon, Pennsylvania and Washington—and the Territory of Hawaii—added their names to the growing list of old age pension laws. A law was also adopted by Arkansas but it was declared unconstitutional because of its peculiar provisions for raising funds. Moreover, Colorado reënacted its pension law amended to meet the constitutional objection raised by the state supreme court and Minnesota amended its optional law to make it mandatory upon the counties. In the Arizona act the age minimum is 70 and the maximum pension $30 a month, the state to pay two-thirds and the counties one-third of the cost. The Indiana law fixes the pension limit at $15 per month and the minimum age, 70; payment of pensions is mandatory on the counties but the state will contribute half the costs. The Maine law sets the age minimum at 65 and the maximum pension at one dollar a day; the cost will be shared equally by state and counties. In Michigan the maximum monthly pension is $30 and the minimum age 70 years, with the state financing and administering the system. The Nebraska act provides maximum monthly pensions of $20 to persons 65 years of age and over, the cost to be borne by the counties. North Dakota pays a maximum pension of $150 a year to persons 68 years of age or older out of state funds. In Oregon, the counties pay pensions up to $30 a month to persons 70 years of age or over. The Washington law provides a maximum pension of $30 a month for needy citizens 65 years of age and over, and is mandatory upon the counties which administer and bear the cost of the pensions. Citizens of Ohio, by a referendum vote of almost three to one adopted an old age pension law providing pensions up to $25 a month to persons 65 years of age and older, the cost to be borne by the state. Amendments to existing laws were adopted in Massachusetts, New Jersey and Wisconsin. With the addition of these ten new laws in 1933, the number of state old age pension laws is increased to 27, of which 21 are mandatory. Alaska and Hawaii have also adopted this legislation.

UNEMPLOYMENT RESERVES

Legislative Progress—Compulsory unemployment reserves and insurance bills were introduced in 25 state legislatures — including the most important industrial states—and in Congress. In seven States—California, Connecticut, Maryland, Minnesota, New York, Ohio and

Utah—such bills were passed through one house. In 16 states and in Congress (for the District of Columbia) legislation was proposed for the establishment of unemployment reserves, following in general "An American Plan" first suggested in 1930 by the American Association for Labor Legislation. The Ohio and Socialist plans proposing a single state pool were likewise introduced in a total of 16 states. In several of the states, bills of two or more of the above types were introduced, there being a total of 68 bills introduced, eight of which were introduced by title only. In addition to the bill for unemployment reserves for the District of Columbia, a proposal to stimulate the enactment of unemployment reserves by the states was introduced in Congress providing that each employer who contributes to an unemployment reserves fund under a state law shall be permitted to deduct 30 per cent of such contribution from his Federal income tax. Investigating commissions were created in Maine, North Carolina, Oregon, Virginia and New Hampshire.

Wisconsin. — Wisconsin, which in 1932 enacted the pioneer law in America, is still the only state having this compulsory legislation. This act, which is of the establishment reserve type, was amended in 1933 to provide that the compulsory features are not to go into effect until after a finding of fact that factory employment in the state is 20 per cent greater or factory payrolls 50 per cent greater than in December, 1932, but not before July 1, 1934 (instead of July 1, 1933). The amendment also provides that the compulsory features are not to become effective if employers of 139,000 employees (instead of 175,000) adopt voluntary plans. The rise in employment and payrolls in Wisconsin had exceeded the requirements of the 1933 amendment by September and October respectively but the Industrial Commission decided to withhold the official announcement of this fact until March 1, 1934, in order "to carry out the apparent legislative intent and to ensure employers a fully adequate opportunity to submit plans for approval" under the voluntary features of the act.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. FOR LABOR LEGISLATION, 131 E. 23rd St., New York City.

AMERICAN FEDERATION OF LABOR, A. F. of L. Building, 9th and Massachusetts Ave., N. W., Washington, D. C.

AMERICAN FEDERATION OF MUSICIANS, 1450 Broadway, New York City.

CONFERENCE FOR PROGRESSIVE LABOR ACTION, 128 E. 16th Street, New York City.

INTERNATIONAL ASSN. OF GARMENT MANUFACTURERS, 395 Broadway, New York City.

INTERNATIONAL ASSN. OF MACHINISTS, 265 W. 14th Street, New York City.

INTERNATIONAL LONGSHOREMEN'S ASSN., 265 W. 14th Street, New York City.

INTERNATIONAL SEAMAN'S UNION OF AMERICA, 666 Lake Shore Drive, Chicago, Ill.

JUNIOR ORDER OF UNITED AMERICAN MECHANICS, 3027 N. Broad St., Philadelphia, Pa.

LEAGUE FOR INDEPENDENT POLITICAL ACTION, 112 E. 19th Street, New York City.

LEAGUE FOR INDUSTRIAL DEMOCRACY, 112 E. 19th Street, New York City.

MARINE ENGINEERS' ASSN., 157 Chambers St., New York City.

National Assn. of Letter Carriers, A. F. of L. Building, 9th and Massachusetts Ave., N. W., Washington, D. C.

National Civic Federation, 570 Lexington Ave., New York City.

National Federation of Post Office Clerks, A. F. of L. Building, 9th and Massachusetts Ave., N. W., Washington, D. C.

National Industrial Conference Board, 247 Park Ave., New York City.

National Industrial Council, 11 W. 42nd St., New York City.

Neptune Association of Masters and Mates of Ocean and Coastwise Steam Vessels, Inc., 80 Broad St., New York City.

Pilots' Association, 119 Broad St., New York City.

DIVISION XVII

RELIGION AND RELIGIOUS ORGANIZATIONS

PROTESTANT DENOMINATIONAL ACTIVITIES

By Herman C. Weber

Editor, *Year Book of American Churches*

THE CHURCHES IN THE ECONOMIC SITUATION

Repeal of Prohibition.—The effect of the political and economic situation on the Protestant churches during the early part of 1933 was confused and perplexed. The election of President Roosevelt with its mandate for an attempt to repeal the Eighteenth Amendment seemed to be a thwarting of a crusade in which the churches have been involved for many generations. Nearly all the Protestant religious bodies were definitely on record in their most official capacities against the legalized liquor traffic and opposed to the repeal of the constitutional amendment. The sentiment of the nation at large was revealed by the election to be overwhelmingly in favor of a different policy. Ecclesiastical leadership was faced with an unprecedented situation.

Ecclesiastical Reaction to the New Deal.—With the inauguration of the new Administration another policy was vividly and compellingly impressed on the national as well as the ecclesiastical mind. This was the policy of the New Deal which greatly attracted many leaders in the churches who gradually swung from the doubt and perplexity of the prohibition controversy to an inquiring, hopeful and more or less enthusiastic receptivity to the President's economic program. The Baptists, both North and South, endorsed the new Administration's attitude at their conventions, though they continued to voice their disapproval of the course of the government in relaxing the control of liquor. The Presbyterians elected a moderator who was the outstanding leader in their church in social matters. The House of Bishops of the Episcopal Church issued an encyclical which presented a somewhat startling point of view but one thoroughly in line with the principles of the New Deal. The attention of the churches seems to be shifting from absorption in the control of the liquor traffic to intense concern with the economic order and the New Deal. This was plainly apparent at the 25th anniversary meeting of the Federal Council of the Churches of Christ in America held in Washington, Dec. 6 and 7. At a crowded meeting in Constitution Hall, and with a radio hookup of exceptional extent, the President addressed himself to the representatives of the major Protestant religious bodies and to the nation itself, with obvious acceptance and confidence. The deliberations of the Council were largely concerned with social justice, though spiritual matters were, of course, debated. The high point of the two days of discussion was reached during an address and an ensuing rather intimate discussion by Secretary Wallace of the Agricultural Department of the new economic order which in his judgment was in sight. Some significant writing in behalf of the religious forces of the country began to appear, such as Edmund B. Chaffee's *The Churches and the Industrial Crisis,* and in conferences such as those inaugurated in the Synod of New York of the Presbyterian Church by its social service committee in December, at which engineers, members of the ''Brain Trust'' of the Administration, qualified denominational leaders, and others debated the Administration policies under the National Recovery Act.

The Depression. — The effects of the long continued depression registered progressively during the year 1933. A number of religious bodies had scheduled their every member canvasses as usual for March and April. The President's action in closing all banks the first week in March brought a serious handicap to all these efforts and reduced the pay-up on denominational budgets very seriously. The period of expectancy and doubt continued until late in the autumn. A number of religious bodies put on special efforts to sustain their financial program and to put a stop to retraction. Among these the Baptist ''Live It Through'' movement, the Presbyterian ''Spiritual Recovery Crusade'' and the Southern Baptist ''One Hundred Million Club'' stood out. Indications in December were that the churches as a whole had weathered the worst of the depression and were on the way to a return to normal functioning.

The Thinking of the Church.—A great deal of attention was evoked in February on the issuance of the *Year Book of American Churches* by the statement in an article on ''Theology in the United States in 1932,'' by Prof. Henry P. Van Dusen, pointing out the passing of non-theistic humanism, the distrust of liberal theology, the resolution of the science-religion controversy progressively, and the renaissance of supernaturalism as the four outstanding trends for 1932. A manifesto on the part of the leading group of humanists in the United States was issued in May. A great deal of controversy arose over the theological implications of the Laymen's Report, the appraisal by a group of laymen of foreign missions as conducted and administered by the Protestant churches. The interest in the underlying struggle between humanism of a most attractive type and supernaturalism was visualized in enormous audiences gathered in the largest centers across the country to hear an international group of missionary thinkers and leaders. Chief among these was E. Stanley Jones, a missionary leader from India, a well known speaker and writer. There were some few signs that the intense sectarianism of 1932, and before, was yielding slightly to the pressure of the need for coöperative spiritual defense against secularism and exaggerated liberalism. The breakdown in the mechanism of justice, both legal and social; the enormous development of gambling evidenced by the liberalization of race track legislation, the propaganda for lottery systems and the spread of bridge-gambling, and the excess accompanying the return of legalized liquor traffic seemed to be driving the churches back upon an appraisal of their administration and technique for the spiritual and moral development of the nation.

Books.—The following list of selections of the Religious Book Club is submitted for record purposes as significant of the choice of such leaders of religious thought as S. Parkes Cadman, Harry Emerson Fosdick, Francis J. McConnell, Charles Clayton Morrison and Mary E. Woolley.

Month	Title	Author
January	*A History of Christian Thought: The West from Tertullian to Erasmus*	Arthur Cushman McGiffert
February	*Out of My Life and Thought*	Albert Schweitzer
March	*The Meaning and Truth of Religion*	Eugene W. Lyman

Month	Title	Author
April	*The March of Faith*	Winfred Ernest Garrison
May	*The Plain Man Seeks for God*	Henry Pitt Van Dusen
June	*The Christian-Jewish Tragedy*	Conrad Henry Moehlman
July	*The Social Triumph of the Ancient Church*	Shirley Jackson Case
August	*Contemporary American Theology*	Edited by Vergilius Ferm
September	*The Protestant Churches and the Industrial Crisis*	Edmund B. Chaffee
October	*And the Life Everlasting*	John Baillie
November	*Christianity and Communism*	H. G. Wood
December	*God at Work*	William Adams Brown

MEMBERSHIP OF THE RELIGIOUS BODIES IN THE UNITED STATES

Source-statistics. — The best compilation of membership in the various religious bodies is that furnished annually in the *Christian Herald* and compiled by Rev. George Linn Kieffer, D.D. It is very extensive, representing efforts to obtain reports from over 200 different groups. The tables in the July, 1933, issue include a number of religious bodies not included in previous lists. The gains over the previous lists were reported as 929,252. A part of this large increase is probably statistical only. The actual increase of church members would probably be somewhere in the neighborhood of 600,000. Dr. Kieffer's tables are more reliable as comparative indexes because of the elimination of "church members" below 13 years of age. A number of religious bodies report as church members all baptized persons; others do not. The application to all reports of the U. S. Census computations of below 13 years membership-percentages provides much more dependable and usable statistics.

Adult Membership. — The total number of members reported in good and regular standing, mostly for the calendar year 1932 but not entirely, was 50,037,209. This total represents about 58.6 per cent of the adult (over 13) population of the U. S. The increase for the Roman Catholic section was 23,938, and for the Protestant section (limited to the larger groups of at least 100,000 members each) was 521,213. In percentages the Roman Catholic Church increased about 0.16, the large-group Protestant bodies 1.85 per cent and the whole population itself 0.6 per cent. There are 37 religious bodies in the tables reporting 100,000 or more members. For statistical purposes these provide practically all necessary and fairly reliable reports. They comprise 47,887,778 reported adult members. Only 2,149,431 (approximately) church members are reported for the 165 or more religious bodies not included. These represent only 4.2 per cent of the total. In the Protestant list are 32 bodies with a reported membership of 29,867,257 adults. (*See* table, p. 637.)

THE GIVING OF THE CHURCHES

The table (p. 638) reports the giving of the religious bodies coöperating in the United Stewardship Council as reported to the meeting of the Council on Dec. 2, 1933. These figures are presented through the courtesy of the secretary of the Council, Rev. Harry S. Myers, D.D. Many of them are old reports because they cover calendar years and the 1933 reports are not available until some time in 1934. The dates attached to the individual reports should be carefully noted.

This same group of religious bodies reported the following totals in the previous period of reporting (approximately 1931): Total giving for all purposes, $374,069,853; in the schedule herewith (approximately for 1932) $311,052,834. The percentage of retraction for giving to all purposes was 16.8 in this group. This compares very favorably with the percentage of retraction of business for the country at large.

THE METHODISTS

General.—The Methodist group of religious bodies contains three major white bodies, Methodist Episcopal, Methodist Episcopal South and Methodist Protestant Churches, and three major colored bodies, African M. E., African M. E. Zion, and Colored M. E. Churches. Efforts to

ADULT MEMBERSHIP OF LARGER RELIGIOUS BODIES FOR 1932

Body	Adult Membership	Increase	Per Cent Increase
Roman Catholic	14,464,949	23,938	0.16
PROTESTANT			
Methodist Episcopal	4,139,405	3,630	0.08
Baptists: Southern Convention	3,818,105	115,790	3.12
Baptists: National Convention (Col.)	3,555,500	45,550	1.29
Methodist Episcopal (South)	2,391,210	45,210	1.92
Presbyterian, U. S. A.	1,867,410	7,915	0.42
Disciples of Christ	1,452,897	20,632	1.44
Baptists: Northern Convention	1,392,200	6,916	0.49
Protestant Episcopal	1,368,930	16,949	1.25
United Lutheran	1,054,573	29,691	2.89
Congregational-Christian	1,019,554	9,213	0.91
American Lutheran Conference	976,211	2,881	0.29
Synodical Lutheran Conference	962,446	28,200	3.01
African Methodist Episcopal	581,750[3]	......	....
Baptists: American Association	494,500	62,989[2]	14.59[2]
Latter-Day Saints	482,783	14,397	3.07
African Methodist Episcopal Zion	479,681	44,181	10.14
Church of Christ	433,714[3]	......	....
Presbyterian, U. S. (South)	433,392	5,765	1.34
United Brethren	363,591	3,399	0.94
Reformed, U. S.	345,999	713[1]	0.20[1]
Evangelical Synod	330,000	5,000	1.53
Colored Methodist Episcopal	328,106	2,622	0.80
Evangelical Church	205,839	1,284	0.62
Church of Christ, Scientist	202,098[3]	......	....
Church of God in Christ (Col.)	189,970	27,029[2]	16.58
Methodist Protestant	179,111	322[1]	0.17[1]
United Presbyterian	169,981	1,956	1.16
Reformed in America	157,548	1,062	0.67
Conservative Brethren (Dunkards)	139,818	5,716	4.26
Seventh Day Adventists	132,100	7,251	5.80
Assemblies of God	116,065	7,020	6.43
Primitive Baptists	102,770[3]	......	....
Total above Protestant Bodies	29,867,257	......	....
Protestant gain (exclusive of those marked [2])	....	521,213	1.85
EASTERN ORTHODOX			
Greek Orthodox (Hellenic)	279,000	......	....
Russian Orthodox	226,240	......	....
North American Orthodox	120,000	......	....
Total above Orthodox	625,240	......	....
Jewish Congregations (estim.)	2,930,332	......	....
Total above 37 bodies	47,887,778	......	....

[Additional bodies (below 100,000 membership) approximately 2,149,431, making grand total adult church membership 50,037,209]

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[1] Marks decreases.

[2] Marks increases computed from 1926 (Census year) to 1932 and averaged for 6 years.

[3] Marks membership either as reported in the Census of 1926 or not comparable with 1931.

bring these bodies or some of them into closer organic union have not been as yet successful. Under the lead of Bishops Cushman, newly elected bishop assigned to Denver by the M. E. Church and Bishop Hay of the M. E. Church South, whose areas are the respective conferences over which they preside, meeting in Colorado Springs in June, 1933, voted to ''memoralize the M. E. Church South and the M. E. Church, pending the union of the two Churches, to enact such legislation as may be required to make possible transfer of pastors between the two Churches without loss of ecclesiastical standing or pension rights; and that we unite to do our utmost to promote organic union of the two

Religious Body	Membership	Congregational expenses	Benevolences		All purposes	Year ending
			Denominational	Non-and Inter-denominational		
Baptist:						
Northern Convention	1,489,836	$17,310,357	$3,037,418	$936,755	$21,284,530	Apr. 30, 1933
Southern Convention	4,066,140	22,390,477	4,951,011	......	27,341,488	Apr. 30, 1933
Brethren: Church of the Brethren	140,914	575,000	381,716	45,000	1,001,716	Feb. 28, 1933
Congregational and Christian Churches	1,040,119	16,623,466	2,139,924	652,391	19,415,781	Dec. 31, 1932
Episcopal: Protestant Episcopal	1,854,918	35,257,742	3,604,880	......	38,862,622	Dec. 31, 1932
Evangelical Church	229,814	3,508,062	569,086	123,267	4,200,416	Sept. 1, 1933
Synod of N. A.	....	3,757,542	467,022	46,000	4,270,565	....
Lutheran:						
American Lutheran Conference	954,677	10,033,509	2,452,089	....	12,485,598	Dec. 31, 1932
Synodical Conference	950,144	10,077,192	2,751,533	....	12,828,725	Dec. 31, 1932
United Lutheran Church	1,021,164	15,181,990	2,621,018	....	15,181,990	Dec. 31, 1932
Other Synods	86,291	651,972	156,194	....	808,166	Dec. 31, 1932
Methodist Episcopal	3,908,262	55,172,718	9,665,458	759,400	65,597,606	May 31, 1932
Episcopal, South	2,653,063	19,458,550	7,147,442	518,500	27,124,492	Dec. 31, 1932
Presbyterian: U. S. A.	1,917,148	30,871,100	7,908,302	....	38,779,402	Mar. 31, 1933
U. S. (Southern)	469,310	6,604,595	2,532,278	....	9,136,873	Mar. 31, 1933
United	177,265	2,738,860	1,271,223	93,871	4,103,954	Mar. 31, 1933
Reformed in America	158,981	3,050,451	568,779	128,695	3,748,015	Apr. 30, 1933
U S.	345,704	3,846,486	962,538	71,870	4,880,895	Dec. 31, 1932

Methodists.'' The sesquicentennial of American Methodism will be observed in 1934. The arrangements for the anniversary have been put into the hands of a joint commission consisting of Bishop W. F. McDowell, Washington, D. C., president; D. C. Roper, Washington, D. C., and W. O. Atwood, Baltimore, Md., vice-presidents; A. H. Backus, Indianapolis, Ind., secretary; N. B. Harmon, Jr., Baltimore, Md., assistant secretary, and John H. Race, New York, treasurer.

The Methodist Episcopal Church. — The World Service Commission met in July, 1933, to receive the report of its treasurer and to canvass the financial and missionary situation. Unexpected optimism was developed in this meeting. The treasurer reported the items of receipts (*see* next column) for various purposes together with the retractions they represented.

The Board of Foreign Missions was courageous enough to project its work for the year 1933-34 on the basis of the outcome of the year 1932-33 without additional serious cuts in administration and personnel.

		Per Cent
World Service	$ 4,786,462	28.7
Ministerial Support	26,853,924	13.1
Property	8,983,885	40.7
All benevolences	10,424,888	30.0
Congregational Expenses	55,172,718	18.7
Total for all purposes	65,597,606	20.7

The Methodist Episcopal general conference of 1932 set up a Commission on the Study of the Supervisional System and Administration and Benevolence Organization. This action was in line with similar movements in other large religious bodies. The Commission had its first meeting in October and organized into sub-committees for the careful study of the present Methodist system of supervision by bishops and superintendents and administrative and board mechanism. The report is due at the general conference to be held in 1936. The members are Bishops Thomas Nicholson and Edgar Blake; ministers F. R. Bayley, Baltimore; John H. Race, New York; Arlo A. Brown, Madison, N. J.; Oscar T. Olson, Wilmette, Ill.; L. C. Wright, Cleveland, O.; Wm. E. Shaw, Peoria, Ill.; Orien W. Fifer, Cincinnati, O.; A. W. Hewitt, Plainfield, Vt.; and

Daniel L. Marsh, Boston; laymen, W. H. G. Gould, Philadelphia; H. C. Baldwin, Detroit; Mrs. Ellis L. Phillips, New York; R. B. Hayes, New Orleans; Frank A. Horne, Brooklyn, and Mrs. David D. Forsythe, New York.

The Methodist Episcopal Church South. — The Southern Methodists have been anticipating their quadriennial gathering or General Conference by a very lively discussion in their denominational press of the status of their episcopacy, the consolidation or readjustment of their board organization and the reduction of the overhead charges and their budgets. The General Conference is scheduled for April 26, 1934, at Jackson, Miss., and will be the 22d meeting. An attempt is being made to abolish the assessment plan for denominational work and develop a plan for voluntary giving. The bishops met in May and contrary to expectations found a spirit of optimism and hope rather than of defeatism. This was reported to be largely due to the success of the "Kingdom Extension Offering."

THE BAPTISTS

General.—The leading groups of Baptists are the Northern Convention, the Southern Convention and the National (Colored) Convention. Each of these bodies has an annual meeting. In 1933 the Northern Convention was convened in Washington, D. C., beginning May 23, and the Southern Convention in the same place beginning May 19. A joint session of the two conventions, the first one since the separation of the churches into the two conventions in 1844, was held on May 23 and gave occasion for the presentation of goodwill and mutual esteem, though no other approach to closer union was made during either session.

The Northern Baptists. — At the convention held in Washington, D. C., beginning May 23, resolutions were adopted opposing the repeal of the Eighteenth Amendment, denouncing persecution of German Jews, sweatshops and the unsatisfactory conditions in coal fields. The convention also approved efforts looking toward disarmament and world peace, and it called on Congress to consider ways of regulating the motion picture industry.

The Southern Baptists.—The Southern Convention commended the international and economic policies of President Roosevelt, but formally deplored his support of the repeal of the Eighteenth Amendment and the "use of his high office and the White House to advertise the beer business." Reports were made to the convention about the largest gain through baptisms to church membership in eight years. The Rev. M. E. Dodd, pastor of the First Baptist Church, Shreveport, La., was elected president. Southern Baptist indebtedness in March, 1933, approximated $14,000,000. To meet the critical financial situation a Baptist One Hundred Thousand Club was organized under the leadership of the Rev. Frank Tripp, D.D., pastor of the First Baptist Church, St. Joseph, Mo. Each member of this group is pledged to contribute a dollar a month until the debt has been removed. The plan envisages a $100,000 payment per month on the indebtedness.

THE PRESBYTERIANS

General.—Three bodies constitute the bulk of the Presbyterian family, Presbyterian Church, U. S. A., Presbyterian Church, U. S., frequently called the Southern Presbyterian Church, and United Presbyterian Church. Proposals for union between these bodies have been recently discussed. The Southern Church adopted a plan for federal union a year ago which was not acceptable to the other two bodies. The Presbyterian U. S. A., and the United Presbyterians have, however, proceeded with a Plan of Union which was reported to the respective Assemblies and submitted to all ministers and sessions for study. The Plan will come before the Assemblies in June, 1934, for final action and reference to the presbyteries. Ultimate union is planned for the year 1936, if continuously affirmative action is obtained from all the bodies or groupings which will be called on to vote. The 250th anniversary of the Presbyterian churches established by Francis Mackenie on the eastern shore of Maryland and Virginia was observed Oct. 4, 1933. The Presbyterian Church U. S. A., and the Southern Church united in the celebration of this anniversary which included a pilgrimage to all of these churches.

The Presbyterians, U.S.A. — This body, the largest group of Presbyterians, elected Rev. John McDowell, D.D., identified with the social service work of the Board of National Missions, as its Moderator, in the General Assembly held at Columbus, O., May 25-29. A movement to omit the Assembly did not succeed in its purpose. The place of meeting, however, was moved from the Southwest, Fort Worth, Tex., to Ohio, much nearer the center of the membership of the Church, effecting a saving of some thousands of dollars. The sessions of the Assembly were crowded into a shorter number of days. It was feared that there would be greatly reduced attendance. This did not prove to be the case. The Assembly was notably alert and vital. An attack on the policies of the Foreign Board, in connection with its relation to the Laymen's Report and with one of its own missionaries, Mrs. Pearl S. Buck, was decisively squelched by the Assembly. The small minority immediately announced the formation of a new board of "Presbyterian" foreign missions. During the autumn a number of presbyteries took action condemning this move, but various attempts were made to set up battle lines for the next General Assembly. One of these was the nominating of a candidate for moderator by a group of "Bible-believing" objectors to be presented at the next General Assembly on this issue. During the autumn a spiritual recovery crusade was promoted by the General Council of the Church which enlisted a great section of the churches and lifted their morale. The effort was so helpful that the General Council called an early meeting of its members in Chicago, Oct. 25, and suggested to all the churches a "movement for the quickening and enrichment of the spiritual life" to last until Easter.

The Presbyterians, U.S.—The Southern Presbyterians seriously considered omitting their General Assembly, but like the larger group of Presbyterians, finally decided not to interfere with the regular occurrence of their annual legislative assemblies. The General Assembly was held at Montreat, S. C., in May, 1933. The Rev. E. T. Thompson, D.D., was elected moderator. The business sessions were constricted into three days of work and were largely confined to passing on the reports of the boards and agencies. Many overtures were negatived on account of the brief time available for the study of the subjects they presented. One contentious matter, the relation of the Southern Church to the Federal Council, was revived by several presbyteries, but was disposed of by reference to an *ad interim* committee for study. The committee as appointed consisted of the Rev. Drs. William Crowe, E. T. Thompson, R. W. Miles, and R. A. White, and Mr. A. L. Currie.

THE DISCIPLES

Pittsburgh Convention.—The Disciples of Christ held their annual meeting Oct. 11, 1933, in Pittsburgh. Many suggestions for the intermission of this meeting had been offered but the brotherhood as a whole felt that the gathering should be held for the sake of the morale of the Church. It is not a delegated body but largely a mass-meeting. It was reported to have served its purpose admirably. Attendance was somewhat reduced, but the interest and the spirit were unexampled. Some changes were determined on in the united work of the Disciples churches through the United Christian Missionary Society. The Board of Church Extension withdrew from the Society on the ground that it was a building and loan society rather than a missionary agency. The

National Benevolent Association also withdrew to develop its work for the aged and orphaned as a benevolence organization and with a view to concentrating on local or area support for its enterprises. The three strictly missionary organizations in the United Society, the American Christian Missionary Society, the Foreign Christian Missionary Society and the Christian Women's Board of Missions, were directed to perfect a closer relationship. Educational work was directed to be more closely related to the work of the Society and expanded as part of its responsibility.

THE EPISCOPALIANS

The Protestant Episcopal Church.—A significant encyclical letter of the bishops of the Protestant Episcopal Church was released during the autumn. It is addressed to all the churches of this religious body and contains the following passage which discusses the need for a new order of society: "In this momentous period in the life of the Church and State, your Bishops, with a solemn sense of their responsibility lay before you certain matters that they believe deserve your serious consideration. A finer type of Christian faith and courage calls for service and sacrifice to meet the modern world chaos. No *mere re-establishment of an old economic order will suffice.* Christ demands a new order in which there shall be a more equitable distribution of material wealth, more certain assurance of security for the unemployed and the aged and, above all else, an order which shall substitute the motive of service for the motive of gain. Christians should face the fact that this new order can succeed only as the followers of Christ sacrifice and suffer greatly. It is not for us 'to do our part.' The Master calls us to consecrate our all. For us the cross stands as the symbol of a world recovery act. It demands that we become world recovery agents who dare to carry the cross. It demands that through loyalty to our King we serve as leaders in bringing to pass a national and world recovery and redemption."

THE REFORMED CHURCHES

The Reformed Church in America.—Frequently called the Dutch Reformed Church, this body dates from the earliest beginnings of religion on Manhattan Island. It submitted for the first time to the pressure of conditions and intermitted its annual General Synod as a business session. The Synod was regularly called to order by one of its officers, another commissioner announced that no quorum was present and the Synod was adjourned *sine die.* An unusual bequest from one of its retired ministers, the Rev. A. Messler Quick, who has recently died, proved a help to the hard beset boards of the denomination. This brother amassed a fortune by fortunate investments after he had retired from active work, and left it to the various agencies of his denomination.

The Reformed Church in the U. S.—This body frequently referred to as the German Reformed Church, has been working out changes ordained at its triennial meeting in 1932. At that meeting it took action with reference to a plan of union with the Evangelical Synod, a body established in 1840 by missionaries from the Evangelical Churches of Germany and Switzerland. The Reformed Church itself was established in the early 18th Century by immigrants largely from the Palatinate in Germany. The union is a natural suggestion for the intimate association of two bodies of German origin with somewhat similar cultural developments under American conditions. The resultant body, when the union is effected, will contain about 600,000 members.

The Evangelical Synod.—This religious body often confused with the Evangelical Church, a Methodist group of German antecedents, held its quadriennial General Conference at Cincinnati, O., Oct. 3-10, 1933. Proposals for omitting this meeting were defeated because of the important measures for union with the Reformed Church in the U. S. which were pending. The proposals were presented and adopted with enthusiasm. The plan of union calls for no immediate merging of all interests. The congregation, classes, synods and districts are to continue to exist and to do their work in the way it was done prior to the union. They are also to continue to hold and to supervise whatever property they possess and institutions they control. Congregations, judicatories or institutions may unite by mutual consent.

THE LUTHERANS

The Lutherans are divided mainly into three groups, the United Lutheran Church with headquarters in New York; the American Lutheran Conference, consisting of the American Lutheran Church, the Evangelical Lutheran Augustana Synod of N. A., the Norwegian Lutheran Church of A., the Lutheran Free Church and the United Danish Evangelical Lutheran Church in A.; and the Evangelical Lutheran Synodical Conference, of which the leading group is the Synod of Missouri. None of these main bodies had regular meetings during the year, but the Century of Progress Exposition in Chicago gave occasion for a great series of successful Lutheran demonstrations. June 18 was designated as "Lutheran Day." Several of the synods met. The Scandinavian peoples, most of whom are Lutherans, attended the Fair in large numbers during their particular, Swedish, Finnish, Danish, etc., Days. The 450th anniversary of the birth of Martin Luther on Nov. 10, offered the Lutherans a particularly good opportunity for memorial celebrations. One was held in the national capital, in Constitution Hall, with an address by Dr. Hans Luther, Ambassador from Germany. Another great assemblage was held in New York City in the Hippodrome.

CONGREGATIONAL—CHRISTIAN

An uneventful year is reported by this religious body now entering the third year of its existence as a union of the Congregational Churches and the Christian Church, effected in 1931. The usual biennial meeting, scheduled for 1933, was omitted on account of the depression. Plans have been formed, however, for a meeting at Oberlin, O., in June, 1934. This is one of the historic spots of Congregationalism and the meeting there will doubtless be constructive. Changes in administrative work within the Commission on Missions have been proceeding in common with the general movement in nearly all religious bodies for a revision of budgets and administrative arrangements. The prudential committee of the American Board (mission) adopted a statement in November concerning its attitude toward the Layman's Report, *Rethinking Missions*, calling attention to its hearty and discriminating approval of this appraisal of Christian missions. The following statement amplifies the attitude of the committee: "The spirit of the Report is not unlike that which actuates our own denomination. Our own fellowship consists of people of many divergent views united in a coöperative effort. Our Board has been able to express for all those varied points of view an ideal of service mobile and flexible, yet positive and adequate." The promotional agency of the Commission on Missions planned a comprehensive church to church visitation as its major effort for the support of denominational projects and the development of congregational morale.

INTERDENOMINATIONAL ACTIVITIES

By Preston King Sheldon

Editor and Writer

RELIGION CHALLENGED

NRA Helps Defense.—Throughout the world in 1933 there traveled a spirit of revolt against organized religions. To thwart an undermining of their strength religious leaders united to meet the problem in the United States and Canada by lessening their former emphasis on differences in belief and pooling their energies in a massed defense of religion as being more than an inexpressible private attitude limited to rules of personal conduct and to theological convictions. Social and economic issues were taken up in the United States to be disposed of on spiritual terms. Matters of faith and order were submerged. In the program of the National Recovery Administration spiritual leaders saw tangible results of a moral awakening that had to do with the establishing of the rights of all citizens to an earned livelihood.

The Obstacle of Nationalism. — A huge challenge to the *raison d'être* of all religious congregations was the rise of competitive nationalistic influences leading to an ascendency of militarism. A reborn philosophy of this type in Germany was accompanied by prejudice toward Jews and evangelical Christians. This called forth in the United States a flood of protest. Thirty-five Christian leaders protested persecutions of Jews in Germany through the Greater New York Interfaith Committee in March. Charles H. Tuttle, president of the committee, urged clergymen to protest also from pulpits. Another protest was issued by the Federal Council of the Churches of Christ in America. A mass meeting was held the same week in Madison Square Garden under the auspices of the American Jewish Congress. Non-Jewish women led by Mrs. Carrie Chapman Catt, peace advocate and woman's suffrage leader, also protested. A veiled distrust also appeared in international diplomatic circles at Geneva where attempts were made to agree on reduced armaments. Plans for a world economic code also were frustrated in London. The most significant international event was the recognition of Russia by the United States Government. A large number of progressive churchmen approved this action although there had previously been wide opposition to it, principally among Roman Catholics.

Condemnation of Greed. — The world grappled with problems of unemployment, production and distribution of goods, fair wages and territorial rights while the United States was witnessing kidnappings, lynchings, strikes, the repeal of prohibition and just enough of a slur on the freedom of the press to call forth a renewed insistence on the constitutional rights of newspapers. Early in the year pronouncements were made by Protestants, Roman Catholics and Jews, independently and also in joint statements, condemning the general trend toward greed.

United States-Canada Church Affiliation. — The leading Protestant churches in the United States and Canada announced in May an affiliation brought about through the Federal Council of the Churches of Christ in America and the United Church of Canada. The latter accepted an invitation from the former to enter into the new relationship, and was the first ecclesiastical body outside the United States to become so affiliated. The number of denominations represented in the Council, however, were not increased because of the net result of five mergers consummated since 1911 in the United States. There were still twenty-five Protestant denominations listed having a membership of more than 22,000,000 persons. Participation in the work of the Federal Council on the part of denominations in Canada outside the United Church was also sought by the Rev. Dr. Albert W. Beaven, president of the council, in a statement interpreting the significance of the new affiliation.

New Denominational Union.—Another union of denominations in the United States was being promoted late in 1933 when the Evangelical Synod of North America voted unanimously to unite with the Reformed Church in the U. S. The previous mergers which occurred after the Federal Council was organized were those of the Free Baptists with the Northern Baptists; Welsh Calvanistic Methodists and the Presbyterian Church in the U. S. A.; Evangelical Association and the United Evangelical Church; Congregationalists and Christians and the assimilation of three Lutheran groups into a new body, United Lutheran Church in America. The Canadian group was formed in 1925 by combining the Methodist, Presbyterian and Congregational bodies in that country. The communicant membership in 1933 approached 675,000, and there were more than 1,600,000 persons under pastoral care. Official boards representing the new union began shortly after its consummation to coöperate with church bodies in the United States through contacts with the Home Missions Council, the Foreign Missions Conference and the International Council of Religious Education.

Limitations to Protestant Federation.—The progress of federation movements among Protestants in the United States, emanating as it did from emotional motives, had really resulted in the formation of groups of contributors headed by spirited leaders who sprang ahead of disunited sects and acted as guides along the way toward universal brotherhood. The initiative of the average church member in the direction of recognizing those of differing theological thought and worship enough to join in religious programs, was still limited for the most part to impelled necessities in many localities for sweeping into the scope of church activities the social and economic needs of communities. This was most marked in the decade after the world war and gave rise to undenominational congregations in some of which as high as 28 sectarian groups were represented. Councils of churches had been formed in seventeen States, eight of which had State federations. There were federations also in fifty cities.

Financial Factors.—Finances coming directly to local federations from denominational treasuries, however were not appreciably noticeable. Encouragement of federations from denominations was almost entirely limited to a moral support from official assemblies, many of which had a part in creating them. Personally, though many of the officers in these bodies were counted as material supporters not only of federations but of the Federal Council of the Churches of Christ in America. Individual congregations had also begun to supplement the gifts of men and women who, impelled by a new state of mind had developed an attitude similar to that of aggressive churchmen in the Federal Council, whose assumed leadership had successfully exerted an influence against corrupt social practices for a quarter of a century.

Opposition to Central Missionary Control. — Resistance to improved administrative measures in the field of Christian foreign missions which might have paralleled the progress toward interdenominational coöperation in North America, was met in the firm opposition of denominational mission boards to a recommendation that a single central board be created in the United States to have control of funds and executive direction of the work of American Protestant foreign missionaries. The recommendation came late in 1932 from the Commission of Appraisal of the Laymen's Foreign Missions Inquiry. Their report had also emphasized the rise of a secular distrust of all religions which it was feared would soon result in the spread of paganism. The denominational boards at home had not yet caught up with the spirit of many of their own missionaries in the field who were in closer unity. Progress in home and foreign missions unification still consisted mainly in conferences to perfect plans for carrying forward independent programs with centralized understandings.

Support for Recovery Program.—No era in history witnessed such stirring efforts by virile religious leaders as were exerted by them in 1933 in behalf of human justice throughout the world. All the forces of Christianity and Judaism were directed against a paganistic spirit apprehended in the United States. The influence of this attitude was felt all through scholastic, business and political life. It was the answer of humanity to a philosophy which for centuries had come from Christian pulpits counselling the sick, struggling and poverty-stricken to accept their lot as a divine visitation either for discipline or punishment meted out for perversity. A beginning of the overturn of such an acquiescent attitude was easy to discern in the rallying of progressive religious leaders in 1933 to the support of President Roosevelt in his program for national recovery based on helping every citizen in his search for an ''abundant life'' by aiming at a more equitable distribution of material resources as a tangible aid to spiritual growth. If the recovery program succeeded it was to thwart the aims of the privileged against the underprivileged classes. A joint statement was issued in the summer by Jews and Christians urging congregations to aid in building up a public opinion favorable to its progress. The appeal was signed by Dr. John A. Ryan, director of the social action department of the National Catholic Welfare Conference; the Rev. Edward L. Israel, chairman of the social justice commission of the Central Conference of American Rabbis and the Rev. James Myers, industrial secretary of the Federal Council of the Churches of Christ in America.

Labor Sunday Message.—A working out of the social and industrial ideals for which church leaders had stood for years was seen in the program for national recovery by the Rev. Dr. Samuel McCrea Cavert, general secretary of the Federal Council, when he issued the annual Labor Sunday message of that body. The message concluded by laying an emphasis on the Church's ''business to teach, to inspire, to provide the moral and spiritual dynamic for basic change.'' Fear that blind selfishness would destroy civilization was expressed if the Church did not move forward ''to the realization of our ideals of justice and human brotherhood.''

FEDERAL COUNCIL CELEBRATION

Speech of President Roosevelt.—Franklin D. Roosevelt, speaking out against paganism, strongly defended the newer methods of applying Christian ethics through group action advocated for years by the Federal Council of the Churches of Christ in America under a cross fire of criticism from fundamentalists and modernists when, on the night of Dec. 6, he gave a radio address at a celebration of the Council's twenty-fifth anniversary in Constitution Hall, Washington, D. C. He wedged into our national philosophy an understanding of the meaning of the efforts of enlightened clergymen and lay Christian leaders to improve the conditions under which men lived. He also spoke at the Waldorf-Astoria, New York, on Oct. 4, at a dinner closing a four-day annual meeting of the National Conference of Catholic Charities in connection with which was celebrated the hundredth anniversary of the founding of the Society of St. Vincent de Paul, a leading Roman Catholic charitable organization.

Reliance on New Generation. — Citing the challenge of early Christians to ''the pagan ethics of Greece and Rome,'' the President declared before the Protestants: ''We are wholly ready to challenge the pagan ethics that are represented in many phases of our boasted modern civilization.'' He placed the duty to carry on a progressive program of social work in the hands of the ''new generation of ours'' which, he said, ''stands ready to help us.'' He added: ''They may not be as ready as were their fathers and mothers to accept the outward requirements or even many of the ancient observances of the several churches, yet I truly believe that these same churches can find in them stronger support for the fundamentals of social betterment than many of the old generation are willing to concede.'' The President's two addresses demonstrated specifically how a great statesman can aid in the development of private moral attitudes favorable to a square deal with mutual progress toward the common objectives of Church and State and without danger to the prerogatives of either.

Sees Common Goal.—"That human agency we call government is seeking through social and economic means the same goal which the churches are seeking through social and spiritual means," the President said at Washington. And further: "We recognize the right of the individual to seek and to obtain his own fair wage, his own fair profit, in his own fair way, just so long as in the doing of it he shall not push down nor hold down his neighbor. And at the same time we are at one in calling for collective effort on broad lines of social planning, a collective effort which is wholly in accord with the social teachings of Christianity." To Catholics in New York he declared his anticipation of "a new science of social treatment and rehabilitation" to be worked out through an unselfish partnership between all churches and private social service agencies working with the agencies of the Federal Government. Behind such coöperative leadership the President saw two vital reasons for maintenance of the efforts of churches and other nongovernmental groups; First, actual individual application of the principles of social justice in daily life, and second, a prevalent realization that spiritual values count in the long run more than material values.

Other Addresses.—Dr. Beaven, in the address he gave prior to that of President Roosevelt, recounted strides made by the Federal Council in promoting interdenominational conferences, not only among Protestant groups in this country and abroad but with Roman Catholics and Jews. Another speaker was Dr. Adolf Keller, of Geneva, Switzerland, director of the Central Bureau for the Relief of the Evangelical Churches of Europe, former general secretary of the Universal Christian Council on Life and Work, who as honorary lecturer of the latter body, spoke in several universities, seminaries and churches in this country in the Fall.

Special Meeting.—A special meeting of the Federal Council was held in the New York Avenue Presbyterian Church in Washington, on Dec. 6-7, during which seven questions were discussed to bring out the spiritual nature of economic and social problems. The high point of the daytime sessions was an address before a discussion group on the morning of the second day by Henry A. Wallace, Secretary of Agriculture. He laid aside his manuscript and urged ministers and teachers alike to devote themselves to a program of unselfish leadership while public officials and their advisors were trying to guide the country's social, economic and political systems along a parallel course. Other speakers were Dr. Albert W. Palmer, president of Chicago Theological Seminary and Dr. Albert E. Day, minister of the Mount Vernon Place Methodist Church of Baltimore. Devotions were conducted by Dr. T. Albert Moore, moderator of the United Church of Canada; Dr. Howard Chandler Robbins, of the General Theological Seminary and Dr. Peter K. Emmons. The other discussion leaders were Dr. Augustus O. Thomas, director of the World Federation of Education Associations; Bishop John L. Nuelsen, of Zurich, Switzerland; Dr. Daniel A. Poling, editor of the *Christian Herald* and President of the United Society of Christian Endeavor; Bishop John A. Gregg of the African Methodist Episcopal Church; William Green, president of the American Federation of Labor, and Fred B. Smith of the World Alliance for International Friendship Through the Churches.

Message on Reconstruction. — A message for all constituent churches in the United States and Canada was prepared by the executive committee of the Federal Council after the Washington meeting and celebration and sent out over the signatures of official heads of affiliated denominations. A tentative draft was read in Washington by Dr. Beaven. Omission of all reference to the repeal of prohibition was protested. Definition of the Council's attitude on this subject was left for a special meeting of the executive committee in New York, on Dec. 18. The message contained as its core the statement: "We are agreed that our emphasis on spiritual values calls for a rebuilding of our economic life." It called for the undergirding of homes with "the strongest of spiritual influences" to prevent the disintegration of families through "insidious influences of stage, screen and fiction." Increased coöperation among churches was urged by the declaration that "if our churches, committed to the ideal of brotherly coöperation and fellowship by the very Gospel they proclaim, do not coöperate effectively, it is vain for them to preach that commercial and industrial organizations do so." Among the signers were the heads of five non-member commissions. Meanwhile a paragraph on reprisal as a peril had been inserted for the approval of all the signers.

Position on Repeal.—A message to American churches on the liquor problem as draughted by the Council's executive committee at its New York meeting recommended in the interest of sobriety and social welfare that everyone give support to "the best forms of control now possible," including drys (whose position was one of out and out abstinence and absolute prohibition.) The committee advocated limitation of profits by government regulation which would restrict quantities of liquor and also set an upper limit on prices and dividends. Outside this and a call for a renewed emphasis on temperance education the statement warned against the possible danger of high taxation and condemned advertising meant to stimulate excessive drinking. The committee was against the return of the saloon and for divorcing liquor control from partisan politics and patronage. Temperance education as practiced in France, Germany, Russia and Sweden were cited as examples of participation of the State in a planned objective that might be worked out in this country through churches and schools. A determined national campaign for temperance was asked and a recommendation made that the separate States work individually in support of it. Regulation of liquor traffic by national codes was also recommended.

Church Flag Controversy. — The Federal Council was called upon in October to obtain from the Government a ruling as to whether or not a church might hoist the Navy's church pennant above the Stars and Stripes. Dr. Cavert had attended a monthly meeting of the Long Island Baptist Ministers' Union at which the question was brought up by the Rev. J. Earle Edwards of the Queens Baptist Church, Queens Village, L. I., where for six years the pennant had been flown from the same staff above the national emblem during church worship on Sunday mornings. Continued criticism of the practice led to a request for a ruling. Dr. Cavert, while in Washington the next day to arrange for President Roosevelt's address at the December meeting of the Council, personally conferred with Capt. Sydney K. Evans, head of the chaplains' division of the Navy. There was found to be no law on the subject. The Navy church pennant had been hoisted during religious worship on vessels of the Navy at sea since 1836, and more recently was being used above the national emblem. An almost forgotten agreement was recalled that was made during the world war by the National Catholic War Council and the General War-Time Commission of the Federal Council to use the pennant thereafter in any manner deemed appropriate by the churches. The pennant is a white triangle bearing a blue Latin Cross. Considerable confusion, however, was found because of the widening use in Protestant churches of the Christian flag, a rectangular white banner with blue union and red cross which was designed in 1897 at a Sunday school rally in Coney Island. A pledge to this banner, written by the Rev. Dr. Lynn Harold Hough of the faculty of Drew Theological Seminary, was used for the first time on Christmas Eve, 1908, in the old Third Methodist Episcopal Church, Long Island City, of which he was the minister. The

Christian flag, saluted in reciting the pledge which is similar in type to that of loyalty to the national emblem, became a common sight in church auditoriums and processions. On several occasions under Protestant auspices it was being flown above the Stars and Stripes, no doubt because of a belief that it was the flag agreed upon in war-time.

GROUP RELATIONS

Jew and Christian Coöperation.—The first recorded occasion on which a Roman Catholic priest, a rabbi and a Protestant minister travelled and spoke on a planned itinerary was that of a tour in the fall made by the Rev. Everett R. Clinchy, director of the National Conference of Jews and Christians; Rabbi Morris A. Lazaron of the Baltimore Hebrew Congregation and Father John Elliot Ross, professor and associate administrative director at the School of Religion in the University of Iowa. They appeared in 38 cities in 24 states starting at Teachers College, Columbia University, Oct. 30-31 and concluded their tour the week before Christmas at Birmingham, Ala. Their program was provided to help fill the interim between the first National Conference of Jews and Christians at Washington, D. C., in the spring of 1932 and the second which was scheduled for 1935. Seminars were also conducted in cities and colleges throughout the United States.

Labor Manifesto. — An appeal aimed at influencing public opinion was issued as a manifesto in March over the signatures of 160 leading Roman Catholic, Protestant and Jewish clergymen, under the auspices of the National Conference of Jews and Christians, urging a check upon lowered labor standards. The manifesto was based on principles set forth previously by the pronouncements of Pope Pius XI, the Federal Council of the Churches of Christ in America and Jewish national organizations.

Relations Abroad. — Continuous touch was maintained with evangelical church leaders in Germany by letter, cable and personal interviews by officials of the Federal Council of Churches through its Commission on Relations with Churches Abroad, known as the American Section of the Universal Christian Council on Life and Work. The latter was instituted in a preliminary meeting at Geneva in 1920 by the Federal Council, which later set up the Commission as a means of contact and coöperation. A meeting of the executive committee of the Universal Council was held in September in Serbia attended by German Church delegates. Dr. Bell, Lord Bishop of Chichester, and Dr. S. Parkes Cadman were co-chairmen.

German Coöperation Sought.—The decision was reached to continue coöperating with the Germans but to withhold the right to dissent from certain policies. Soon after Ludwig Mueller, Reichbishop of the National German Church, had assumed his duties, he wrote to the heads of churches in other countries seeking to continue a fellowship and coöperation previously begun and over which apprehensions had been felt particularly in America. As a result of the Serbia meeting the Lord Bishop of Chichester communicated to Reichbishop Mueller an expression of grave concern of Christians in other countries over attempts in Germany to deny the Biblical basis of Christianity and to exclude non-Aryans from full church privileges and suppress free speech. The reichbishop replied in December to Dr. Bell reiterating his desire to be of aid in a common defense of Christianity against irreligion. Editorials from the religious press of fifteen denominations were issued in October in pamphlet form by the American Jewish Committee, denouncing the Nazi persecutions. The booklet also contained the text of a protest written by Harry Emerson Fosdick and signed by 1200 Christian clergymen of the United States and Canada.

New York Meeting. — James G. McDonald, high commissioner of the League of Nations, appointed to deal with the problem of refugees from Germany, gave a brief address on Oct. 26 at Riverside Church, New York City, at a meeting of 350 American churchmen under the auspices of the Federal Council's Department of International Justice and Goodwill and the Department of Relations with Churches Abroad. The purpose was a further consideration of relations with the German Church. The guest of honor was Prof. Julius Richter of the University of Berlin who was in the United States collaborating with John R. Mott in the preparation of a new atlas of world missions. Dr. Richter, foremost leader in Germany in foreign mission enterprises, spent about six weeks in America and took back many documents as well as messages, acting as a mediator between the American and German churches. Another visitor was Dr. J. H. Rushbrooke of London, general secretary of the Baptist World Alliance and president of the Evangelical Free Church Council of England, who spoke at a council meeting on Nov. 2.

Surveys.—The Rev. Henry Smith Leiper, executive secretary of the American Section of the Universal Christian Council spent July, August and September in ten European countries, conversing with church and government officials, educational leaders and business executives in an effort to get a true understanding of what was taking place. He was accompanied part of the time by Dr. Cadman, Prof. William Adams Brown and Dr. Henry A. Atkinson. On his return he wrote a confidential report of his findings for private distribution. The countries visited were England, France, Germany, Belgium, Denmark, Czecho-Slovakia, Austria, Hungary, Jugoslavia and Bulgaria. Mr. Leiper personally talked with Reichbishop Mueller. The Rev. Dr. Charles S. Macfarland, general secretary emeritus of the Federal Council of the Churches of Christ in America, returned home later, after some months abroad and an hour's talk with Hitler in which the latter was urged to give a personal audience to representatives of about 4,000 evangelical minded pastors who by November had begun organized resistance.

Consolidation of World Peace Efforts.—A forward step had been taken in 1932 by bringing into closer relations at Geneva the work of the World Alliance for International Friendship Through the Churches and the Universal Christian Council on Life and Work. The office of the former was moved there from London. Henry L. Henriod, former general secretary of the World Christian Students' Federation with headquarters at Geneva, was selected as general secretary of the World Alliance and the Universal Christian Council. Lord Dickinson of Painswick, who had been general secretary of the Alliance, was made its president. In the Alliance were represented the church councils of 36 nations.

Consultative Pact Sought. — The American Section, meeting in Philadelphia in November, through a committee headed by Dean Luther A. Weigle of the Yale Divinity School, proposed an amendment to the Treaty of Paris, which in substance was to be an agreement binding upon the signatory nations to carry out a pledge to enter into consultation to maintain peace when faced with a breaking out of hostilities violating the pact. The committee, among other recommendations, urged against the manufacturing and distribution by private individuals or firms of arms and ammunition and favored the setting up of international governmental agencies to control the world's arms output.

Campaign for Disarmament. — A campaign was conducted for ten days in October under the auspices of the Department of International Justice and Goodwill of the Federal Council of Churches during which hundreds of congregations in the United States heard addresses on disarmament. Dr. Mary E. Woolley, chairman of the department, spoke at a mass meeting in Washington. Walter W. Van Kirk, secretary, spoke in New York.

RELIGIOUS COALITION

Missionary Unification.—Arrangements were made in the summer for an international coalition of Christian forces through the exhibiting in 1934 of a modern painting of Jesus by Col. H. Stanley Todd under the auspices of the Universal Christian Council. The painting ''Nazarene'' was given a prominent place in the Hall of Religions at the Century of Progress Exposition. Thousands of devotees journeyed to the artist's Long Island studio on Easter morning to attend a dawn service on his lawn with the painting as the center of attraction. Dr. William F. Sunday, pastor of the Lutheran Church of the Good Shepherd, Brooklyn, while abroad in the summer, introduced the plan to have the painting seen in other countries and brought back word that such an exhibit would be viewed as a unifying missionary influence.

Hall of Religions.—The Hall of Religions was believed to be second in popularity at the Century of Progress Exposition, first interest being in science. The hall was erected at the expense of persons of many faiths. Dr. Hugh S. Magill, general secretary of the International Council of Religious Education, had charge of the exhibits under the auspices of the Committee on Progress Through Religion at the Exposition. The central position in the main lobby was given to an exhibit of the Chalice of Antioch, early Christian communion cup, claimed to hold rank as the earliest artistic Christian object in existence. Daily conferences were held in the assembly hall in which all aspects of religious education were presented. Within the hall which stood in the centre of the grounds was a rotunda from which extended two wings. The south wing was used by religious groups, which, while coöperating with other bodies, desired to make separate exhibits. The north wing was for Protestant groups which worked together officially in home and foreign missions, social service and religious education. In this wing Col. Todd's painting was hung. A book exhibit was held in a library corner which also had a rack of up-to-date periodicals. The painting was taken throughout the United States in the Fall under the auspices of the Foreign Missions Conference of North America and the Missionary Education Movement.

Foreign Mission Campaign. — A campaign, conducted to increase interest in foreign missions, was started Sept. 28 in Worcester, Mass., and ended Dec. 15, in Philadelphia, after visits to 29 cities and sixteen states. A similar campaign was conducted in the spring as a preliminary, in 15 cities of the Northeastern States. Dr. Sam Higginbottom, who was finishing a year's furlough from his agricultural mission at Allahabad Agricultural Institute, India, which he founded and headed as principal, and Dr. E. Stanley Jones, evangelist to the educated classes of Asia, were principal speakers in the spring. Dr. Jones continued in the fall and was accompanied by the Right Rev. Logan H. Roots, Bishop of the Protestant Episcopal Diocese of Hankow, China; Dr. Charles R. Watson, president of the American University, Cairo, Egypt; Miss Lillian L. Picken, evangelist in Satara, India; Dr. Herman Chen-en Liu, president of the University of Shanghai, China, and Dr. Yi-fang Wu, vice president of the National Christian Council of China and a leading feminine educator in her own country.

Interfaith Group Meeting. — The second world parliament of religions was held in Chicago, opening at the New England Congregational Church on June 18 under the auspices of the World Fellowship of Faiths. Prayers were said by representatives of a dozen religions. Miss Jane Addams, of Hull House, presided at the opening session. Others were held until November, including a congress for 22 days, starting Aug. 27, at the Hotel Morrison. There were more than 100 speakers representing the sects of eleven creeds. Included was the Maharaja Gaekwar of Baroda, a wealthy prince of 71, first sovereign ruler to visit the Century of Progress Exposition. Other speakers were Keder-Nath Das Gupta, a Hindu of India; Col. Patrick Callahan of Louisville, Ky., Roman Catholic temperance advocate and national vice-chairman of the fellowship, and Rabbi William H. Fineshriber of Philadelphia. The fellowship is otherwise known as The Threefold Movement and in it are represented Christian and Jewish denominations.

RELIGIOUS EDUCATION

Programs of World Bodies Merged.—A daily vacation Bible School council was formed in June at the Grammercy Park Hotel, New York City, by merging the programs of the World Association of Daily Vacation Bible Schools and the International Association of Daily Vacation Bible Schools, both of which organizations, by their titles, were causing confusion. The latter organization was formed in 1907, bringing into its membership workers from the United States and Canada. The former was organized later and was representative of schools in all other countries. The entire movement was begun in 1901 by the Rev. Dr. Robert G. Boville. Both groups were incorporated and as separate entities were entitled to endowments so that legal difficulties prevented more than the adoption for the time being of a plan for coordination.

Week-Day Instruction.—Two valuable pamphlets were issued from the Office of Education of the U. S. Department of the Interior during the year bearing on problems met with throughout the country in releasing Protestant children from the public schools to receive religious instruction under the auspices of coöperative week-day religious schools and others that were being maintained individually by denominations. Mary Dabney Davis, senior specialist in nursery-kindergarten-primary education, discussed the subject in *Pamphlet 36* which may be had from the Government Printing Office. Ward W. Keesecker, specialist in School Legislation, discussed the laws of the various States in *Pamphlet 39,* likewise obtainable.

MISSIONS

Foreign Missions. — Virtually every shade of opinion was roused early in the year over a controversy projected in the Fall of 1932 by the release of a report of the Commission of Appraisal of the Laymen's Foreign Missions Inquiry completed in Japan, China and India, including Burma, over a period of two and a half years. The appraisal commission found a need for a freer intercourse between persons of all religious belief in foreign countries. A more critical selection of missionaries was recommended. Many advanced ideas were expressed for meeting the challenge of a rising secular distrust, among them being a lessened emphasis on the need of emotional appeals by evangelists seeking to make converts to Christianity. Fundamentalists formed early in 1933 in New York City an Association for the Re-emphasis of New Testament Missions, held several mass meetings to condemn what was termed by them to be a humanistic modernism in the report of the appraisal commission, and by the end of the year were confining their efforts to searches for literature on missions in which similar attitudes were expressed. Their purpose was to continue to defend foreign missions on the basis of orthodoxy. Denominational mission boards, while agreeing in part with many of the Commission's recommendations, for the most part clung to established customs in the face of the return home of hundreds of missionaries for whose salaries funds were no longer available.

Home Missions.—A committee on review and forecast under the chairmanship of Dr. H. W. A. Hanson, president of Gettysburg College, was preparing a report on home missions based on work started by another committee on a five-year program. The report was to be ready for use at the annual meeting of the Home Missions Council in January, 1934.

XVII. RELIGION AND RELIGIOUS ORGANIZATIONS

THE ROMAN CATHOLIC CHURCH

By John B. Kelly

Spiritual Director, Catholic Writers Guild of America

STATISTICAL

The latest official statistics available present the Roman Catholic population of the United States in this Papally proclaimed Holy Year of 1933 as numbering 20,268,433 members. In the American hierarchy of the Church there are four Cardinals, sixteen Achbishops, and 102 Bishops. The priesthood numbers 29,782, ordained clergy, the increase in their numerical strength this year being 1,485 in full major Orders. Of this total in the priesthood 8,765 are members of religious Orders. There has been an increase of 108 churches erected this year, bringing the total number of edifices dedicated to Roman Catholic worship to 18,260. There have been erected nine new seminaries since January, making the total of 181 institutions preparing 20,923 theological students for ordination into the Roman Catholic priesthood.

EDUCATION AND CARE

In the educational realm of the Church there are 195 colleges, 27 of these being the product of this year's scholastic activities. There are 656 academies for girls, a gain of sixteen during this past year. And there are 966 High Schools, an increase of 29 during the past twelve months. The total registration of students is given as 158,352, a gain in attendance of 13,960 pupils. The parochial schools number 7,462, 52 less than last year's official report. The attendance in the same shows a relative decrease of 107,089 pupils. But the present total of enrolled pupils is 2,170,102. There are 50,154 orphans sheltered and educated in the 327 asylums under the auspices of the consecrated religious workers. There are today 146 homes dedicated to the sheltering and care of the destitute aged, and in the 650 hospitals providing medical attention for those seeking restoration to health, the number of cases treated is not recorded in full.

PAPAL APPOINTMENTS

Elevations to a place in the Roman Catholic hierarchy of America during the past year through official designation by the Holy See of Rome feature the Most Reverend Elmer J. Ritter in the See of Indianapolis; the Most Reverend John A. Duffy, Bishop of Syracuse; Bishop James A. Walsh, consecrated for work in the Catholic Foreign Missions, and Monterey, Calif. was given a newly appointed ecclesiastical Superior in the person of Bishop Philip G. Scher. The Most Reverend James T. Hayes, S. J., and the Most Reverend Aloysius E. del Rosario were assigned to stations in bishoprics of the Philippine Islands. Bishop Joseph H. Ryan was named to the titular See of Madra, and Bishop Charles W. Le Blond was installed in the Episcopal seat of St. Joseph's, Mo. Helena, Mont., received a new ecclesiastical superior in the person of Bishop Ralph E. Hayes, while Bishop Gerald Shannessy was appointed to the See of Seattle, Wash. The new Bishop of Alexandria, S. C. is the Most Reverend Daniel F. Desmond. The Most Rev. Amleto Giovanni Cicognani was appointed Apostolic Delegate to the United States, succeeding Archbishop Fumasoni-Biondi.

HOLY YEAR

The official Papal proclamation of this as the Jubilee year of the century, recording the 1900th anniversary of the Redemptive Act upon Calvary's hilltops was received as a call to extraordinary acts of piety by the Nation's millions of Roman Catholics. Designated as the Holy Year by the ruling Pontiff many millions arranged for participation in its spiritual awards. Pope Pius XI, using the Papal radio station, donated to the Vatican by Guglielmo Marconi, was heard by America in the living voice when he broadcast in January a blessing to this Nation for the first time through radio communication. Archbishop Fumasoni-Biondi, the Papal Delegate in office at the time, received the same for American Catholics. With the assistance of the Mackay Radio Station at Sayville, L. I., a Papal broadcast by radio-phone on the observance of the Holy Year was radiated through the land by America's major corporations.

EVENTS IN AMERICA

Among events of record in Catholic America are the Catholic Conference on Industrial Problems, the protest by the American hierarchy against the Mexican government's persecution of Catholics within its borders, and the beatification in Rome of an American woman, Gemma Balgani, foundress of The Good Shepherd Order of Nuns. The Laetare Medal awarded yearly by Notre Dame University, Indiana, fell to John McCormack, the celebrated Irish tenor. In higher educational circles another event of interest was the conferring of a Doctor of Laws degree upon Franklin Delano Roosevelt, our national President, by the Catholic University of America. The Medal for Peace, which is an annual award of the Interallied Federation of World War Veterans, was bestowed upon Georgetown University. The present Papal Delegate, Archbishop Amleto Giovanni Cicagnani, replaced the retiring delegate who was called to occupy a seat in the College of Cardinals in the month of February.

OBITUARY

Among the notables who appeared in the ecclesiastical obituary records were Bishop John Joseph McMahon of Trenton, N. J., Bishop Daniel J. Curley of Syracuse, N. Y., and the Most Reverend John J. Dunn, the Bishop Auxiliary of New York's Archdiocese. In lay circles the most notable of Catholic deceased was Senator Thomas J. Walsh, who was paid a national tribute as his remains lay in the United States Senate chamber. President Franklin D. Roosevelt attended the funeral rites and uttered a eulogy over the remains of the departed statesman.

THE EASTERN ORTHODOX CHURCH

By William Chauncey Emhardt

Counselor on Ecclesiastical Relations, Protestant Episcopal Church

CONFLICTING CANONICAL CLAIMS

Interest in the Eastern Orthodox in the United States during the past year has centered around the Russian Church. The arrival of Bishop Benjamin, of Paris, in America with credentials from the Metropolitan Sergius, locum tenens of the Patriarchate of Russia, seeking to blend the claims of various prelates in America into a homogeneous church, owing obedience to Moscow has added another complication.

To understand the difficulties he faced it should be known that in America we find the Russian Church of pre-war days under the Metropolitan Platon, formerly of Kherson and Odessa. Some years ago the Russians from Galicia, basing their claims upon an ukase of the late Czar, organized an independent church and elected the Rev. Adam Philipofsky as their bishop. Soon afterwards the so-called Living Church of Russia commissioned John Kedrowsky as the ruling prelate in America.

In the meanwhile the émigré bishops residing in Europe had formed a Holy Synod resident in Kerloci (Karlovitch) near Belgrade, Serbia, and claimed jurisdiction over the Russian Church outside Russia. One of their number, Archbishop Apollinary, was sent to America and organized a Church owing obedience to Karloci. It is this mixture that Archbishop Benjamin hopes to blend.

There is no doubt that the majority of the Russians from Russia recognize the Metropolitan Platon as their lawful prelate. There is little doubt that, if the terms of the ukase of the Czar are respected, the Russians from Galicia would also accord this recognition.

The major problem confronting Archbishop Benjamin centers around the canonical claims of the Metropolitan Platon.

It would seem desirable to present the arguments on which these claims are based. These grow out of an epistle of the locum tenens of the Holy Patriarch of Moscow and All Russia, the Mitropolitar of Iaroslav, Agathangel, to the Archbishops and all Children of the Orthodox Russian Church. In this he rests his claim to jurisdiction on the following telegram:

"In view of the extreme difficulties which have arisen in Church administration as a result of my being indicted by the civil Court, I consider it beneficial for the Church to appoint your reverence as head of the Church administration until such time as the Church Council may convoke. The civil authorities consent to this; therefore please come to Moscow without delay.
(Signed) Patriarch Tichon."

In respect to local Churches he makes the following pronouncement:

"Beloved in the Lord Archbishops: For the time you are deprived of guidance, administer your dioceses independently, being guided by the scriptures and canons until higher Church authority is re-established, decide yourselves those questions for which you formerly used to need the approval of the Holy Synod, and when in doubt address yourselves to me."

METROPOLITAN PLATON'S EPISTLE TO AMERICA

Acting on these premises the Metropolitan Platon, June 3, 1933, issued the following epistle:

"In our endeavors towards the peace, unity, and stability of the Church life in North America, we have taken steps to attain the safety of the Russian Orthodox Church here from the disastrous effects of the Russia revolution, and from the political complications connected with it. In unity with my Vicar Bishops we have pu as the basis of our actions the instructions given to us by His High Eminence, Metropolitan Aga-Thangel of Yaroslav, who was the immediate successor of His Holiness Tikhon, Patriarch of All Russia. It seems natural, therefore, that from that time on *i.e.,* 1922, the North American diocese has become a temporarily autonomous diocese, although remaining a part of the Russian Church, pending the re-establishment of normal conditions in the life and the administration of that Church. We have therefore always proceeded to put aside and stop every endeavor to involve our diocese in the political game. The terrible fate of the many closed churches in Soviet Russia was a sufficient justification for the line of action which we have followed. It has seemed apparent that Metropolitan Sergius of Nijni Novgorod has realized and justified our conduct, trying, as it appeared, to follow the principle of complete separation of Church and State.

"However, events have shown that the ideological evolution in Russia has followed the political revolution.

"That 'evolution to the left' has first touch our diocese in the shape of an attack on us and on our Church in America from the side of 'the so-called Living Church,' and the 'Renovationists' in the person of John Kedrovsky. However, when within Soviet Russia itself these new movements have lost their power, acuteness and evil to the Church, and also in America have not succeeded in their endeavor to obtain the Church properties,—the evolution of thought towards Sovietism began to creep in in the so-called 'Patriarchal' Church in Russia. How this has happened within Russia was a matter of interest to us here, but not a vital one until the moment when the central Church authorities in Russia brought forward the demand (first in Western Europe, and later in America) to sign an obligation of loyalty towards the Bolshevik power in Russia. Trying to conceal the nature of that atheistic power and its endeavor to annihilate faith in God and all religion in the world, the present Church authority in Moscow has in mind to bind the conscience of the religious leaders and thus prevent it from expressing its natural feeling of indignation against the Communistic violence. That Church authority is threatening us with purely canonical sanctions in case we refuse to agree to their demand not to object to the Soviet power. But it is more important for us to keep our conscience clear and to follow the example of the Apostles who teach us to fear more the Lord than men.

"Therefore we will remain unchanged on purely Church and religious basis, and on the historical Russian national ground; we will follow steadily the instructions of Metropolitan Agathangel. In view of the demands of Moscow, repeatedly addressed to us, now through the specially sent to America from Paris, Archbishop Benjamin, to obtain from us the above-mentioned obligation, which has to be immediately published in the American press, we deem it our duty to inform all the priests and their flocks in North America about the following:

"1. Remaining a part of the Church of Russia, its Russian Orthodox branch of North America, the Russian Church in this country has the intention to remain Russian *religiously* but not politically, and still less desires to be connected with the Soviet regime which is saturated with Communistic and atheistic principles. That Church therefore in my person absolutely does not agree, and will not agree, to sign an obligation of loyalty towards the Soviet government.

"2. We separate from us all political platforms aod political ideas which have evolved within the Russian people in connection with the revolution in Russia. The Russian Church in America in our person considers it impossible and disastrous to connect its existence in America in future with the Russian Church within Soviet Russia, in as much as the ideological evolution is controlling even the Patriarchal Church and compelling it to speak not of the welfare of the Church of Christ, not in the spirit of the Church Brotherhood, confidence and love, but exclusively in favor of the Soviet regime and its proper welfare in Soviet Russia which is only possible by securing the sympathies of the present rulers of Russia. So long as church freedom will not be secured for the whole Russian Church the connection with that center is full of dangers for the Russian Church in America, for her priests, her parishes and her properties. In our person, we from now on, temporarily deny the existence of such connection.

"3. From the days of the revolution in Russia, and even from the days of the war, and later the civil war, in view of the great difficulties in communication, our Church here was in fact an autonomous church body, and has received from Metropolitan Agathangel a canonical background for such autonomous self-government. The Russian Orthodox Church of North America, in my person, again and again is compelled to act in the spirit of that canonical interpretation and decide to follow in future its directions which will secure her unity, steadiness and firmness. We are now therefore proclaiming the Russian Orthodox Church in America, in its present state, personal and as to its properties, temporarily autonomous, pending the establishment of normal church life within Russia.

"4. Being within the limits of the United States of North America and Canada, consisting in more than ninety per cent of citizens of these countries, possessing in the laws of these countries a guarantee of its peaceful development, the constitutional guarantee of freedom of speech, religious beliefs, the right to assemble, the Russian Orthodox Church in America considers it the duty of all members of the Clergy in North America, of all members of Church Committees, and of all parishioners, to absolutely abstain from giving any sort of 'obligation of loyalty' to any foreign power outside of the country in which flows the life and the activity of the members of our Church here. We must avoid any 'double loyalty' in order to prevent our Church here and her properties from being handled along the lines of Communistic conception, which denies the Church the right to own and occupy these properties, which is so evident within Soviet Russia. From that center comes to us these demands to bind our Church in America by such obligations which will result in its enslavement.

"5. In our endeavor to create peace, unity and stability within the Russian Church in North America we have always been and are now receiving the constant support of faithful flocks in America. Our people here have clearly understood the dangers of our present Church life and have unanimously voted at the councils in Pittsburgh in 1922 and in Detroit in 1924, giving to me personally authority and right to act in the spirit of that safeguarding of our Church in America and giving the right to proclaim it temporaril autonomous. In full faith that ou kind, faithful Russian-American floc will follow us, we invoke God's blessing upon them and request them t firmly stand by our instructions a given here. May God's blessing remain in future on the Russian-Amer can Orthodox people as it has alway remained with our people in the ne world from the time of our predeces sors in the North American See, Hi Holiness Archbishops Nicholas an Tikhon, and of our own beginnin the year 1907. May God help us. Go is with us.

"Metropolitan Platon,
"Archbishop of North America
Canada and the Aleutian Islands.'"

At present the entanglement is unravelled. Encouragement is found i the universal desire of the Russian laity to arrive at a peaceful solution

JUDAISM AND JEWISH COMMUNAL AFFAIRS

By Bernard G. Richards

Director, Jewish Information Bureau, New York

PERSECUTIONS OF GERMAN JEWRY

The dominant interest which occupied the Jews of America and of the world in 1933, over-shadowing other communal concerns, was the ruthless persecution of the Jews in Germany by the regime of the Nationalist Socialist Party, which began immediately after the advent of Adolph Hitler as Chancellor of the so-called Third Reich. Preceding that event of March 5, the Nazi party, built up on the program of race purity, superiority, and exalted Germanism, had carried on an anti-Semitic propaganda in its most virulent forms for some thirteen years, attributing all ills from which the country suffered to Jews, Liberals, Socialists, etc. When this party became the government, the worst fears of the Jews in Germany and elsewhere, who had long been apprehensive about the rise of this menacing organization, were realized. For many weeks after that and beginning with the boycott against Jewish stores of April 1, the forces of blind hatred, bitterness and brutality, for years incited to violence, were let loose in such an impetuous and reckless way, that even a restraining authority could not have held back the onslaught of the deliberately infuriated mobs marching as troops and troopers of various description. But there was no such restraining power. Brutal attacks, killings, kidnappings, night raids and arrest of innocent young people on the flimsiest pretext continued for several months. The exact figures of the victims cannot be ascertained but all evidence points to a frightful sacrifice of human lives. More frightful still is the program of eliminating the Jews from every sphere of useful activity, involved in Article 4 of the Nazi platform: "None but members of the nation may be citizens of the State. None but those of German blood, whatever their creed, may be members of the nation. No Jew, therefore, may be a member of the nation."

This can only lead to economic extermination, and the exclusion of thousands of Jewish men and women from trades and professions, having come under the all-embracing governmental supervision, the closing of the doors to all governmental employment, etc., the exile of distinguished academicians, great scientists and eminent men of letters, the escape of some 60,000 refugees to various centers of Europe, are only the first manifestations outlining the appalling extent of the German-Jewish tragedy involving approximately 600,000 Jewish souls. Trapped and held helpless by a hostile military regime, with every avenue of communication, outside of the resources of the foreign press correspondence, officially shut off, the plight of the Jews in Germany appealed all the more poignantly to their co-religionists in other lands. The Jews had lived in Germany for 1,000 years and Germany's early example of granting equal rights to members of the race, served as a model of emancipation in other lands, just as the development of modern Jewish enlightenment and culture in Germany served to encourage such study and advancement in other lands.

AMERICAN PROTESTS AND MEETINGS

The Nazi attack upon the well-organized, progressive and patriotic Jewry of Germany came as a stunning blow to Jews within and without Germany, shaking the foundation not only of a mode but of a theory of life and shattering the sense of security and faith in civilization. American Jews were among the first to voice their indignation at the outrages committed and in the wave of protest which spread throughout the world expressions of condemnation and sympathy, coming from the most important Christian organizations and leaders, were heard in this and many other lands. From the Madison Square Garden protest mass-meeting of March 27 to the protest march through the streets of New York of May 10, the largest and most impressive assemblages of their kind, large meetings of indignation and public appeal were held in many cities of the country. Public statements of various Christian groups were published, including one appeal signed by 1400 ministers of Christian churches of various denominations in the United States. On June 10, expressions of consternation and horror were voiced in the Senate of the United States, when addresses were delivered by Senators Joseph D. Robinson (Ark.), Jesse H. Metcalf (R. I.), Royal S. Copeland (N. Y.), David I. Walsh (Mass.), Millard E. Tydings (Md.). Equally vigorous protests were heard in the British Parliament, the French Chamber of Deputies and in other official assemblies in different lands. On May 15, the question came up before the Council of the League of Nations, in connection with the violation of the rights granted to Jews as a minority in Upper Silesia, and the appeal, in what was known as the Bernheim Case, was sustained, while Germany was subjected to much criticism in the general discussion.

The public demonstrations referred to, were organized chiefly through the instrumentality of the American Jewish Congress, Bernard S. Deutsch, President, and this body as well as the American Jewish Committee, Dr. Cyrus Adler, President, and the Independent Order B'rith Abraham, Alfred M. Cohen, President, conducted the various representations made to our State Department in Washington and to other official channels. The task of collecting funds for the relief of the victims of the Nazi assaults devolved upon the American Joint Distribution Committee, Felix M. Warburg, Chairman and Rabbi Jonah B. Wise, Chairman of the United Jewish Appeal of the A. J. D. C.

CARE OF GERMAN REFUGEES

Hopes that the League would take more direct action in connection with the entire German-Jewish situation did not materialize; but the condition created by the concentration of many thousands of refugees in different capitals of Central Europe, led to the appointment by the League of a special Commission to deal with the problem of the refugees, with Prof. James

G. McDonald of New York as Chief High Commissioner. With the aid of various coöperating governments and Jewish and non-Jewish civic bodies in different lands, this Commission is to undertake the task of raising a fund wherewith to care for the thousands of men and women who have suddenly been dislocated by the German upheaval. As one means of providing for these refugees, the Zionists have urged the availability of Palestine and representations relating to the matter have been sent to the Mandates Commission of the League of Nations. At the same time, hostile demonstrations on the part of the Arabs have caused the British Administration in Palestine to restrict immigration in a manner which the Zionist Organization regards as being contrary to earlier understandings and assurances. This is now being made the subject of various petitions and appeals. At the same time, several thousand refugees from Germany have already entered Palestine.

But, however, pressing and distracting the sudden German catastrophe has been and though it has demanded much of their thought and effort, the Jews of America have not forgotten the claims of religious, educational and philanthropic activities at home nor the local poor dependent upon the various charitable institutions. Work for the protection of the rights of Jews abroad, for the promotion of the development of the Jewish homeland in Palestine as well as for the relief of European sufferers outside of Germany, has gone on as heretofore. At the same time, the different organizations listed below have continued activities identical with those previously recorded.

RELIGIOUS EDUCATION

Under the heading of Religious Education, the Jewish Educational Association of New York, Israel Unterberg, President, which encourages the establishment and endowment of various schools, has campaigned and secured funds for its activities, these being parallelled by different bodies in a number of large cities West and South. In some cities, like Chicago, Boston, Cleveland, Detroit, St. Louis, San Francisco, etc., there exist colleges or schools for the training of religious teachers for the requirements of the various schools in different communities. The four large Jewish colleges for training of rabbis and teachers of religion have witnessed a year of considerable activity and progress. Two of these institutions, the Hebrew Union College in Cincinnati, Dr. Julian Morgenstern, President and the Jewish Theological Seminary of America, New York City, Dr. Cyrus Adler, President, have, as heretofore, been making continual additions to the remarkable collections of Jewish books and manuscripts in their libraries. The newer Jewish Institute of Religion, New York City, Dr. Stephen S. Wise, President, has entered upon its tenth year of activities. The ultra orthodox Yeshiva, or Isaac Elchanan Seminary, Dr. Bernard Revel, President has gone ahead with its plan of conducting the old-time Yeshiva along the lines of an up-to-date college, which combines a Jewish and Talmudic education with a modern course of college studies and for the first time creates a college modeled along parochial lines. The new building is located at Amsterdam Avenue and 184th Street, New York City.

The emphasis placed in recent years upon the need of educational work among Jewish children and the youth, has found a response in the formation of a number of youth organizations and cultural activities, and these bodies, like the Young Judea, Young Israel, Avukah, Masada, Junior Hadassah, Menorah, Intercollegiate Association, Hillel Foundation, etc., have continued their different activities despite the present difficulty of securing sufficient financial support. Identified with these interests, is the work of the Jewish Publication Society of America, with offices in Phliadelphia, Simon Miller, President, which is now passing into its 45th year, and which has, in the course of its history, built up a considerable and significant library of books in the English language, relating to Judaism, Jewish life and history.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL CHURCHES

American Theosophical Society, "Olcott," Wheaton, Ill.

American Unitarian Assn., 25 Beacon St., Boston, Mass.

Board of Direction of the General Synod of the Reformed Church in America, 25 E. 22nd St., New York City.

Christian Science Church, 11 W. 42nd St., New York City.

Congregational Christian General Council, 287 Fourth Ave., New York City.

Freethinkers' of America, Inc., 317 W. 34th St., New York City.

Friends' General Conference of the Religious Society of Friends, 1515 Cherry St., Philadelphia, Pa.

General Conference of Seventh-Day Adventists, 6840 Eastern Ave., N. W., Takoma Park, Washington, D. C.

General Council of the Presbyterian Church in the U. S. A. 156 Fifth Avenue, New York City.

National Lutheran Council in America, 39 E. 35th St., New York City.

Nationalist Spiritual Assn., 600 Penn Ave., S. E., Washington, D. C.

Northern Baptist Convention, 152 Madison Ave., New York City.

Society for Ethical Cultuure of New York, 2 W. 64th St., New York City.

Union of American Hebrew Congregations, Merchants' Building, Cincinnati, Ohio.

Union of Orthodox Jewish Congregations of America, Amsterdam Ave. & 186th St., New York City.

United Lutheran Church in America, 39 E. 35th St., New York City.

United Synagogue of America, Broadway and 122nd St., New York City.

Universalist General Convention, 16 Beacon St., Boston, Mass.

Vedanta Society, 34 W. 71st St., New York City.

Volunteers of America, 34 W. 28th St., New York City.

INTERNATIONAL ORGANIZATIONS

Assn. for the Promotion of Christian Unity, Chamber of Commerce Bldg., Room 412, Indianapolis, Ind.

Baptist World Alliance, Bates College, Lewiston, Me.

Central Bureau of Evangelical Churches in Europe, 105 E. 22nd St., New York City.

Committee on Cooperation in Latin America, 254 Fourth Ave., New York City.

Committee on Friendly Relations Among Foreign Students, 347 Madison Ave., New York City

Continuation Committee of World Conference on Faith and Order, P. O. Box 226, Boston, Mass.

Ecumenical Methodist Conference, 720 Omaha Bank Building, Omaha, Neb.

International Assn. of Daily Vacation Bible Schools, 100 E. 42nd St., New York City.

International Association for the Promotion of Liberal Christianity and Religious Freedom, 25 Beacon St., Boston, Mass.

International Congregational Council, 287 Fourth Ave., New York City.

International Evangelistic Bureau of the U. S. A., 1111 Walnut St., Cairo, Ill.

International Society of Christian Endeavor, 41 Mt. Vernon St., Boston, Mass.

Lutheran World Convention, 39 E. 35th St., New York City.

Near East College Association, Inc., 18 E. 41st St., New York City.

Religious Education Association, 59 E. Van Buren St., Chicago, Ill.

Universal Christian Council on Life and Work, 105 E. 22nd St., New York City.

Western Section of Alliance of Reformed Churches Throughout the World Holding the Presbyterian System, 1012 Witherspoon Bldg., Philadelphia, Pa.

World Student Christian Federation, 347 Madison Ave., New York City.

World Sunday School Assn., 1 Madison Ave., New York City.

World Unity Foundation, 4 E. 12th St., New York City.

INTERCHURCH ORGANIZATIONS

American Sunday School Union, 1816 Chestnut St., Philadelphia, Pa.

Chaplain's Aid Assn., 401 W. 59th St., New York City.

Church Peace Union, 70 Fifth Ave., New York City.

Conference of Theological Seminaries and Colleges in the U. S. A. and Canada, Lancaster, Pa.

Council of Church Boards of Education, 111 Fifth Ave., New York City.

Epworth League of the Methodist Episcopal Church, 740 Rush St., Chicago, Ill.

Federal Council of Churches of Christ in America, 105 E. 22nd St., New York City.

Fellowship of Christian Cooperation, 50 W. Broad St., Columbus, O.

Fellowship of Faiths, 315 Fourth Ave., New York City.

Fellowship of Reconciliation, 2929 Broadway, New York City.

Free Church of America, 25 Beacon St., Boston, Mass.

National Council of Protestant Episcopal Churches, 281 Fourth Ave., New York City.

Threefold Movement, 315 Fourth Ave., New York City.

AUXILIARY ORGANIZATIONS

Catholic Church Extension Society of the U. S. A., 180 N. Wabash Ave., Chicago, Ill.

Catholic Guardian Society, 485 Madison Ave., New York City.

Catholic Protective Society, 477 Madison Ave., New York City.

Church League for Industrial Democracy, 154 Nassau St., New York City.

Community Church Workers of the U. S. A., The, 1302 Chicago Temple, 77 W. Washington St., Chicago, Ill.

Institute of Social and Religious Research, 30 Rockefeller Plaza, New York City.

Lord's Day Alliance, 156 Fifth Ave., New York City.

National Conference of Jews and Christians, 105 E. 22d Street, New York City.

Woman's Christian Temperance Union, Evanston, Ill.

Woman's National Sabbath Alliance, 156 Fifth Ave., New York City.

Young Men's Christian Assn., 347 Madison Ave., New York City.

Young Men's Hebrew Assn., 71 W. 47th St., New York City.

Young Women's Christian Assn., 600 Lexington Ave., New York City.

Young Women's Hebrew Assn., 71 W. 47th St., New York City.

RELIGIOUS PUBLICATIONS

American Baptist Historical Society, Upland Ave., Chester, Pa.

American Baptist Publication Society, 1701 Chestnut St., Philadelphia, Pa.

American Bible Society, Bible House, New York City.

American Tract Society, 7 W. 45th St., New York City.

Chicago Tract Society, 440 S. Dearborn St., Chicago, Ill.

Gideons, 202 S. State St., Chicago, Ill.

Institute of Social and Religious Research, 30 Rockefeller Plaza, New York City.

National Testament and Tract League, 200 Kellogg Bldg., Washington, D. C.

Pocket Testament League, 156 Fifth Ave., New York City.

Religious Education Assn., 308 N. Michigan Ave., Chicago, Ill.

Society for the Propagation of the Faith, 462 Madison Ave., New York City.

MISSIONARY

Agricultural Missions Foundation, 419 Fourth Ave., New York City.

American Board of Commissioners for Foreign Missions, 14 Beacon St., Boston, Mass.

American McAll Assn., 112 S. 16th St., Philadelphia, Pa.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

American Mission to Lepers, 156 Fifth Ave., New York City.

Christian and Missionary Alliance, 260 W. 44th St., New York City.

Committee of Reference and Council, 419 Fourth Ave., New York City.

Council of Women for Home Missions, 105 E. 22nd St., New York City.

Federation of Women's Boards of N. A., 419 Fourth Ave., New York City.

Home Missions Council, 105 E. 22nd St., New York City.

International Missionary Council, 419 Fourth Ave., New York City.

Missionary Education Movement of the United States and Canada, 150 Fifth Ave., New York City.

National Council of Jewish Women, 625 Madison Ave., New York City.

Near East Relief, 149 Fifth Ave., New York City.

Student Volunteer Movement for Foreign Missions, 254 Fourth Ave., New York City.

Woman's Union Missionary Society, 67 Bible House, New York City.

PART SIX

SCIENCE—PRINCIPLES AND APPLICATION

DIVISION XVIII

MATHEMATICS AND ASTRONOMY

MATHEMATICS

By Caroline Seely

The American Mathematical Society, New York

MEETINGS

American Mathematical Society.—The following meetings were held in 1933: New York City, Feb. 25, April 14-15, Oct. 28; Chicago, April 14-15, June 19-24 (in connection with the meeting of the American Association for the Advancement of Science and the Century of Progress Exposition); Palo Alto, March 18; Pasadena, Dec. 2; Cincinnati, Dec. 1-2; Cambridge (annual meeting in connection with the meeting of the American Association for the Advancement of Science), Dec. 26-29. The meetings of the American Mathematical Society are devoted to the presentation of research papers embodying new results in pure and applied mathematics, with occasional invited expository addresses giving the present status of the science in various special fields. More than 350 research papers were presented at meetings of this Society during the past year; abstracts of these papers are published in the Society's *Bulletin,* and most of the papers have appeared or will appear in full in one of the journals mentioned under the heading "Journals" in the present article.

Mathematical Association of America. — This Association held general meetings at Chicago, June 18-19, and at Cambridge, Dec. 29-30, in connection with meetings of the American Mathematical Society held at the same places. It also held a number of sectional sessions in various parts of the country. The meetings of this association are devoted to discussions of questions in the teaching of mathematics in colleges, to expository addresses on topics of current interest in mathematical research, and to papers embodying new results in fields that require no further training than that given by the usual undergraduate course in mathematics.

Mathematical Congress at Chicago.—Probably the most important gathering of the year for mathematicians in all fields was the joint meeting of the American Mathematical Society, the Mathematical Association of America, the American Physical Society, and Section A of the American Association for the Advancement of Science, held at Chicago June 19-24, under the auspices of the Century of Progress Exposition. On account of the attendance of a number of distinguished mathematicians and physicists present at the invitation of the Exposition, this meeting took on the aspect of an international congress, recalling the First International Mathematical Congress, which was held at Chicago in connection with the World's Fair in 1893. The following addresses were presented by the foreign guests: "Some mathematical aspects of the new mechanics" and "Nets on a surface and extension of trigonometry" by Prof. Tullio Levi-Civita of the University of Rome, known for his fundamental work in mathematical physics, especially in creating much of the mathematics needed in the development of relativity theory: "The infinite sequences arising in the theories of harmonic analysis of interpolation, and of mechanical quadratures" by Prof. Lipot Fejér of the University of Budapest, the discoverer of important theorems in analysis, especially in the theory of Fourier series; "Deformations of higher species of surfaces and manifolds" by Prof. Enrico Bompiani of the University of Rome, known for his work in geometry. In addition to many shorter research papers in special fields, the following addresses by American mathematicians were delivered before this Congress at the invitation of the program committee: "Quantum mechanics and asymptotic series" by Prof. G. D. Birkoff of Harvard University; "On the use of Cesàro means in determining criteria for Fourier constants" by Prof. C. N. Moore of the University of Cincinnati; "Certain problems of closest approximations" by Prof. Dunham Jackson of the University of Minnesota: "Invariant methods in differential geometry" by Prof. W. C. Graustein of Harvard University; "Recent progress in additive number theory" by Prof. L. E. Dickson of the University of Chicago; "Mathematical reminiscences of the World's Fair of 1893" by Prof. T. F. Holgate of Northwestern University.

Cambridge Meetings in December.—Another important mathematical event was the joint meeting of the American Mathematical Society and the Mathematical Association of America, held at Cambridge Dec. 26-29, in connection with the meeting of the American Association for the Advancement of Science. An interesting feature was the session devoted to General Analysis (the field with which the name of the late Prof. E. H. Moore of the University of Chicago, is especially associated), at which addresses were made by Professors T. H. Hildebrandt of the University of Michigan, R. W. Barnard of the University of Chicago, and M. H. Stone of Harvard University. A special session was also held on the theory of probability, at which addresses were made by Professors Eberhard Hopf of the Massachusetts Institute of Technology, Felix Bernstein of Columbia University, G. E. Uhlenbeck of the University of Michigan, and Norbert Wiener of the Massachusetts Institute of Technology, and Dr. Borge Jessen of the Institute for Advanced Study. Other invited addresses were presented by Prof. Georges Valiron of Harvard on "Schwarz's lemma; its extensions and application"; Prof. H. H. Mitchell of the University of Pennsylvania, retiring vice-president of Section A of the American Association for the Advancement of Science, on "Linear groups and finite geometries," and Prof. J. L. Coolidge of Harvard, on "The rise and fall of projective geometry." About 90 shorter research papers were presented at this meeting. The occasion was especially marked by the fourth award of the Bôcher Memorial Prize, which was divided between Professors Marston Morse of Harvard University and Norbert Wiener of the Massachusetts Institute of Technology (see a later section of this article, under "Prizes").

APPOINTMENTS OF GERMAN MATHEMATICIANS IN THIS COUNTRY

The effect of the German situation on the mathematical sciences has been very marked, since Germany has been for many years one of the leading mathematical countries of the world. According to recent accounts, more than 60 German professors of mathematics have been dismissed under the laws of the Hitler régime. An Emergency Committee in Aid of Displaced German Scholars has been formed, with President Livingston Farrand of Cornell, as chairman; the American Mathematical Society has appointed as its representatives on this Committee Professors H. F. Blichfeldt of Stanford University, H. L. Rietz of the State University of Iowa, and Oswald Veblen of Princeton University. Mainly through the efforts of this Committee, the following German mathematicians have recently been appointed professors or lecturers in American universities: Dr. Felix Bernstein of Göttingen, at Columbia; Dr. Richard Brauer of Königsberg, at the University of Kentucky; Dr. Hans Lewy of Göttingen, at Brown; Dr. Emmy Noether of Göttingen, at Bryn Mawr; Dr. Otto Szasz of Frankfurt, at the Massachusetts Institute of Technology. Other German mathematicians recently appointed to professorships in American universities are Dr. S. Bochner of Munich, at Princeton, and Dr. Herman Weyl of Göttingen, at the Institute for Advanced Study. The appointment of Prof. Albert Einstein of Berlin, at the Institute for Advanced Study, was made in 1932, before the situation in Germany became acute, but his work at the Institute began in the autumn of 1933.

NATIONAL RECOVERY ADMINISTRATION CONSULTANTS

At the request of the National Recovery Administration, Dr. C. F. Roos has been granted an indefinite furlough by the Guggenheim Foundation, under which he held a fellowship for study of mathematical economics in Europe, to enable him to return to Washington to develop the postulates underlying the Government's recovery programs,— industrial, agricultural, and banking. Dr. Roos will head a study having for its object the determination of demand and cost of production functions for the purpose of determining the effect of wage changes. In particular, Dr. Roos will develop dynamical theories of economics applicable to the new economy. Professors Harold Hotelling of Columbia and J. A. Shohat of the University of Pennsylvania, will act in advisory capacities.

PRIZES, HONORS, AND FELLOWSHIPS

Bôcher Memorial Prize. — This prize is awarded by the American Mathematical Society every five years for a memoir in analysis published during the preceding five-year interval in a journal on the editorial board of which the Society is officially represented. The prize for 1933 was awarded jointly to Professors Marston Morse of Harvard University and Norbert Wiener of the Massachusetts Institute of Technology. The award to Prof. Morse was for his memoir "The foundations of a theory of the calculus of variations in the large in m-space" (second paper), in the *Transactions of the American Mathematical Society* (vol. 32, 1930). A typical problem of the classical calculus of variations is the determination of a curve joining two points and enjoying certain maximal or minimal properties: for example, the curve of shortest length or of quickest descent. Until recently all such problems have been considered "in the small," that is, the curves admitted to consideration (the "extremals") have been studied only in the immediate neighborhood of an initial curve. Prof. Morse's treatment ("in the large") considers extremals distributed over a manifold curved in m- space and investigates an extremal in the whole domain of its existence, and the field of extremals in its totality. This generalization presents serious difficulties, many of which are handled by methods of analysis situs. The award to Prof. Wiener was for his memoir entitled "Tauberian theorems," in (vol. 33, 1932). A Tauberian theorem is one that asserts that the convergence of a series follows from its summability by a certain method; the name is due to the fact that the first theorem of this nature was proved by A. Tauber of Vienna in 1897. In his prize memoir Prof. Wiener, by means of a remarkable Tauberian theorem for Lambert series, gives an extremely simple proof of the classical Prime Number Theorem concerning the distribution of primes.

Chauvenet Prize. — The Mathematical Association of America has awarded its Chauvenet prize for an expository paper on a mathematical subject to Prof. G. H. Hardy of Cambridge, for his paper entitled "An introduction to the theory of numbers," which appeared in the *Bulletin of the American Mathematical Society* (vol. 35, 1929).

Elections to the National Academy of Sciences.—The mathematicians elected to the National Academy of Sciences in 1933 were Professors G. C. Evans of Rice Institute and J. F. Ritt of Columbia University. Prof. Evans is known for his work in the theory of functionals, which deals with problems in which the unknowns to be determined depend on curves or functions rather than on points or numbers. In particular, he has contributed to the theory of integral equations, to potential theory, and, more recently, to the modern mathematical theory of economics, in which methods of the calculus of variations are applied, for example, to determine prices over a period of time that will give the optimum result for the period (presumably the maximum profit to the factory owner, though other definitions of optimum can be considered). Prof. Ritt's work lies in the field of analysis, but makes free use of algebra and number theory. His recent volume in the American Mathematical Society's Colloquium Series, *Differential Equations from the Algebraic Standpoint,* is typical. He is also author of a series of memoirs in the *Transactions of the American Mathematical Society* on exponential polynomials that have aroused much favorable comment on account of their originality.

Fellowships.—The following have been awarded National Research Fellowships in mathematics for the academic year 1933-34: S. F. Barber, L. M. Blumenthal, R. H. Cameron, J. L. Doob, G. A. Hedlund, M. R. Hestenes, Ralph Hull, R. D. James, D. C. Lewis, E. R. Lorch, R. S. Martin, Deane Montgomery, D. S. Nathan, Mildred M. Sullivan, E. W. Titt.

JOURNALS

The principal mathematical journals of this country have, despite the serious financial difficulties due to the depression, been able to meet their obligations for the prompt publication of research in a fairly satisfactory manner. Most of the longer research memoirs by American mathematicians are published in the *American Journal of Mathematics,* the *Annals of Mathematics,* or the *Transactions of the American Mathematical Society.* The *Bulletin of the American Mathematical Society* contains accounts of meetings of the Society and abstracts of papers presented at these meetings, expository addresses, short research papers, reviews of mathematical books, and notes on matters of current interest to mathematicians. The *American Mathematical Monthly,* the official organ of the Mathematical Association of America, contains accounts of meetings of the Association, expository addresses, short research papers that can be read without extensive mathematical training, reviews of books and notes, and a problem department that is much appreciated, especially by mathematical amateurs. The total number of pages printed in these journals in 1933 was about 4,500. Some mathematical research is also published in general scientific journals; for example in the *Proceedings of the National Academy of Sciences,* the *Proceedings of the American Academy of Arts and Sciences,* the *Journal of Mathematics and Physics of the Massachusetts Institute of Technology,* and in journals of the allied sciences, as the *Annals of Mathematical Statistics,* the *Journal of the Franklin Institute,* the *Bell System Technical Journal,* and the *Physical Review.*

Econometrica.—A new publication of especial interest to mathematicians is *Econometrica,* the organ of the Econometric Society, a journal devoted to economic theory in its relation to statistics and mathematics. Among the American mathematicians on its editorial board are H. T. Davis, Harold Hotelling, Oystein Ore and C. F. Roos.

BOOKS

The following books by American mathematicians appeared in 1933 or so late in 1932 that they were not included in last year's list: G. D. Birkhoff, *Aesthetic Measure;* H. T. Davis (editor), *Tables of Higher Mathematical Functions* (volume 1); L. P. Eisenhart, *Continuous Groups of Transformations*; G. C. Evans, *Stabilité et Dynamique dans l'Economie Politique* (in the series *Mémorial des Sciences Mathématiques*); H. Hancock, *Foundations of the Theory of Algebraic Numbers* (volume 2); C. I. Lewis and C. H. Langford, *Symbolic Logic*; C. C. MacDuffee, *The Theory of Matrices* (in the series *Ergebnisse der Mathematik und ihrer Grenzgebiete*); C. S. Peirce, *Collected Papers* (volume 3); *Exact Logic*; T. Radó *On the Problem of Plateau* (in the series *Ergebnisse der Mathematik und ihrer Grenzgebiete*); N. Wiener, *The Fourier Integral and certain of its Applications.* It is of interest to note that three of these appeared in international series of monographs (the *Ergebnisse* and the *Mémorial*). The collected papers of C. S. Peirce now being published the Harvard University Press, do not, of course, represent recent work; the author (1839-1914) is now generally considered to have been one of the most brilliant and original American mathematicians of the nineteenth century.

NECROLOGY

Eliakim Hastings Moore, head of the department of mathematics at the University of Chicago from 1896 to 1931 and one of the recognized leaders of mathematical research in this country, died Dec. 30, 1932, at the age of 70. He was especially known for his system of ''General Analysis,'' in which linear integral equations and other linear operations are considered as parts of the same theory. He served as president of the American Mathematical Society from 1900 to 1902, and was the first editor-in-chief of its *Transactions.*

Ormond Stone, retired professor of astronomy and director of the Leander McCormick Observatory of the University of Virginia, was killed by an automobile Jan. 17, 1933, at the age of 86. Prof. Stone's greatest service to mathematical sciences was probably the founding, in 1884, of the *Annals of Mathematics,* which he supported from his private income and edited for a period of twelve years. This journal, now one of the most important in this country, was later published successively under the auspices of the University of Virginia, Harvard, and Princeton; it is now supported jointly by Princeton and the Institute for Advanced Study, with the editorial coöperation of the American Mathematical Society.

Dr. R. E. A. C. Paley, Fellow of Trinity College, Cambridge, and International Research Fellow resident at the Massachusetts Institute of Technology, was killed by an avalanche on April 7, 1933, while skiing near Banff, Alberta. Although his death occurred at the early age of 26, he was already internationally known for his work in various fields of mathematical analysis, especially those related to Fourier series.

Other deaths that occurred late in 1932 or during 1933 were the following: Prof. R. L. Borger of Ohio University, on Dec. 26, 1932; Dr. E. S. Crawley, professor emeritus at the University of Pennsylvania, on Oct. 18, 1933, at the age of 71; Prof. L. M. DeFoe of the University of Missouri, on April 3, 1933, at the age of 72; Prof. R. L. Green of Stanford University, on Nov. 19, 1932, at the age of 71; Prof. F. B. Williams of Clark University, on March 7, 1933.

ASTRONOMY

By Bancroft Walker Sitterly

Professor, Wesleyan University

ORGANIZATIONS AND MEETINGS

The American Astronomical Society met at Atlantic City Dec. 27-29, 1932, and at Chicago June 22-24, 1933. Both meetings were held jointly with Section D (Astronomy) of the American Association for the Advancement of Science. Abstracts of papers presented have been published in *Publications of the American Astronomical Society* (Vol. 7, nos. 5 and 6, 1933). The president of the Society for 1933 was Dr. W. S. Adams, Director of Mount Wilson Observatory; the chairman of Section D for the same year was Dr. V. M. Slipher, Director of Lowell Observatory.

The Astronomical Society of the Pacific held its annual meeting for the presentation of scientific papers in conjunction with the Pacific Division of the American Association for the Advancement of Science at Salt Lake City June 12-15, 1933. Abstracts of papers presented appear in *Publications of the Astronomical Society of the Pacific* (vol. 45, p. 201, 1933). The president for 1933 was Dr. E. P. Hubble of Mount Wilson Observatory.

Planetaria.—The Fels Planetarium, with the Astronomical Section of the Franklin Memorial Museum in Philadelphia, was formally opened Nov. 1, 1933. James Stokley is director. This is the second American planetarium. The first, the Adler Planetarium in Chicago, attracted capacity audiences during the Century of Progress Exposition, giving a demonstration every hour that the exposition was open. The Griffith Planetarium at Los Angeles, now under construction, is expected to open in 1934, and plans are on foot for a planetarium in connection with the American Museum of Natural History in New York.

THE SUN

A new sun-spot cycle began Oct. 10, 1933 with the appearance of a spot whose position and magnetic polarity indicated that it was not a member of the 1922-1933 series. A cycle begins with the appearance and disappearance of a few spots approximately thirty degrees from the sun's equator north and south; these are succeeded by more frequent spots and spot-groups in regions nearer to the Equator, a maximum frequency occurring about fifteen degrees from it, followed by a decrease in frequency with a still closer approach to the Equator, the last spots of the cycle usually being within ten degrees of it. Each cycle overlaps its successor by a year or more, the last spots of the old and the first of the new appearing together, and so it is probable that the series of the last decade will continue through 1934. During the last three cycles it has been observed that the magnetic polarities of sun-spots follow for the most part a definite law, opposite for the northern and southern solar hemispheres, and that the hemispheres interchange polarities in successive cycles. The spots of the new cycle show the expected reversal of polarity.

The Sun and the Weather.—Dr. C. G. Abbot, Secretary of the Smithsonian Institution, presented evidence that in many regions of the earth the sequence in temperature and atmospheric pressure is correlated with the number of sun-spots, and that in general the sequence repeats itself after 23 years—the double sun-spot period (*Smithsonian Miscellaneous Collections*, vol. 87, no. 18, 1933). H. H. Clayton presented evidence that changes in temperature are also correlated with the intensity of solar heat, and that the climatic zones of the earth shift perceptibly in latitude with variations in the intensity (*Science*, vol. 77, p. 568, 1933). The importance of these correlations, if confirmed and extended, in connection with long-range weather forecasting is obvious.

Miscellaneous Solar Investigations. — Direct observations, visual and photographic, of the chromosphere and prominences of the sun were made by Dr. Edison Pettit and Dr. Frederick Slocum at Mount Wilson Observatory, without an eclipse and without the use of a spectroscope (*Publications of the Astronomical Society of the Pacific,* vol. 45, p. 187, 1933). Their telescope, designed to eliminate as much as possible of light scattered by atmosphere and lenses, was of the type contrived by Dr. Lyot of Meudon, France, and used in his photography of the corona and its spectrum in 1930 and 1931, from the Pic du Midi (*Journal of the Royal Astronomical Society of Canada,* vol. 27, pp. 225, 265, 1933). Dr. R. S. Richardson measured on Mount Wilson photographs the relative intensities of sun-spots, faculae, and the solar surface, in different colors, finding results at variance with the theory that sun-spots are kept cool by their expansion at the photosphere (*Publications of the Astronomical Society of the Pacific,* vol. 45, p. 195, 1933). Dr. J. H. Moore of Lick Observatory found on spectrograms of the corona, taken at the eclipse of August, 1932, indications of an outward motion of the coronal material from the sun's surface, of about 25 kilometers per second (*Publications of the Astronomical Society of the Pacific,* vol. 45, p. 147, 1933). This confirms similar observations by him in 1922. Dr. D. H. Menzel of Harvard and Dr. J. C. Boyce of Massachusetts Institute of Technology tentatively identified three prominent lines in the spectrum of the corona as due to oxygen in a peculiar state of excitement (*Harvard Observatory Announcement Card,* no. 285, October 25, 1933).

THE PLANETS

Spot on Saturn.—During the first week in August, 1933, Will Hay at Brighton, England, Dr. A. Weber at Charlottenburg, Germany, and J. C. Willis at the U. S. Naval Observatory, discovered a bright spot near the equator of Saturn. At first it was quite clearly defined, about 15,000 miles long and 8,000 wide; within a few weeks it extended nearly halfway around Saturn and became dim and indefinite. On Aug. 29 another white spot was detected at Lowell Observatory. Definite spots in the cloudy envelope of Saturn are rare but important, since they afford the only means for detailed study of Saturn's rotation and atmospheric currents. Like Jupiter's spots, those appearing on Saturn in different latitudes rotate at different speeds, the periods of equatorial spots being the shortest. The spots of 1933 rotated in about ten hours fourteen minutes, a period agreeing well with those of equatorial markings observed in 1794, 1876, 1891-1894 and 1910 (*Observatory,* vol. 56, p. 308, 1933). Photographs of the principal spot by Dr. W. H. Wright at Lick Observatory showed striking differences in its intensity and form in different colors (*Publications of the Astronomical Society of the Pacific,* vol. 45, p. 236, 1933).

Planetary Spectra.—The light we receive from a planet is sunlight reflected from its surface or atmosphere and then passed through the earth's atmosphere. Examined with a spectroscope, it, therefore, shows absorption lines and bands due to the substances of all three atmospheres, solar, planetary and terrestrial. This fact has made it very difficult to obtain evidence that gases similar to those of our own air exist on other planets, for the terrestrial bands of these gases mask the planetary. So far no sign of either water vapor or free oxygen has been detected on any planet except perhaps Mars (*Astrophysical Journal,* vol. 63, p. 133, 1926; *Publications of the American Astronomical Society,* vol. 7, p. 171, 1933). Bands of gases which are not constituents of the atmospheres of either earth or sun are, however, prominent in the spectra of the four major planets, and the identity of these gases has long been a question. Many of the bands are in the infra-red regions of the spectrum, recently made accessible to detailed study through great extensions in sensitivity of photographic plates in that direction. Dr. Rupert Wildt at Göttingen, Germany, studying small-scale spectrograms of Jupiter, Saturn and Uranus made at Lowell Observatory, Arizona, and at Göttingen (*Veröffentlichungen der Universitätssternwarte zu Göttingen,* Heft 22, 1932), and Dr. Theodore Dunham at Mount Wilson, studying plates of Jupiter and Saturn taken with a high-dispersion spectrograph attached to the 100-inch telescope (*Publications of the Astronomical Society of the Pacific,* vol. 45, pp. 42, 202, 1933), have identified several bands as produced by ammonia and methane compounds which could exist in a gaseous state (as water vapor could not) at the very low temperatures which prevail in the atmospheres of those planets. Dunham has also identified bands of carbon dioxide in the infra-red spectrum of Venus.

A comprehensive review of present knowledge of planetary spectra, including the bright-line spectrum obtained from the atmosphere of the planet Earth at night, was given in the George Darwin Lecture delivered before the British Royal Astronomical Society on May 12, 1933 by Director V. M. Slipher of Lowell Observatory, one of the chief contributors to progress in this field (*Monthly Notices of the Royal Astronomical Society,* vol. 93, p. 657, 1933).

METEORS

Extension of Observations.—The increasing interest in the study of these visitors from space is shown by the ever more extensive reports of observations by members of the American Meteor Society (in *Popular Astronomy* each month), and also by the formation of the Society for Research on Meteorites at Chicago in August, 1933, with 55 charter members. The president is Dr. F. C. Leonard of the University of California at Los Angeles, and the secretary is Prof. H. H. Ninger of the Colorado Museum of Natural History, Denver.

Showers.—A magnificent shower of meteors, radiating from the head of the constellation Draco, was seen in western Europe on Oct. 9, 1933. They seem to have been followers of the Giacobini-Zinner comet. On the night of the display the earth was within half a million miles of the comet's orbit (the comet had passed the point three months before) and the meteors came in the direction of the comet's motion. Showers have been noted on this date several times before, but none to compare with this. Hopes that the Leonid shower in November might rival in 1933 its splendid visitations of 1833 and 1866 were disappointed, as they were in 1932. The meteors appeared in only average frequency. It is probable that the main body of the Leonids has missed the earth's orbit on this round, diverted by the action of the planets.

Meteor Spectra.—Dr. P. M. Millman of the Harvard Observatory has made a study of all the photographs of meteor spectra available to the end of 1931 (*Annals of the Harvard College Observatory,* vol. 82, no. 6, 1932). Since to obtain one of these spectra a very rapid spectrograph must happen to be directed toward the point where a very bright meteor appears, it is not surprising that Dr. Millman could assemble only nine specimens. They are all bright-line spectra, showing iron, calcium and other metals under moderate excitation. In some, the calcium lines are most prominent, in others, the iron, the former presumably representing ''stony'' meteors, the latter ''metallic.'' From the relative intensities of the lines, temperatures of the order of 3,000 degrees Centigrade are inferred. In later short notes Dr. Millman reports that a concerted effort, at Harvard Observatory stations in Massachusetts and Arizona, and several amateur stations, obtained the spectra of eight Leonid meteors in November, 1932 and four other bright meteors during 1932 and the spring of 1933, more than doubling the number of existing photographs. But to get these, more than 600 plates were exposed.

Carolina Meteor Scars.—A great number of large smooth elliptical depressions, seen on aërial survey maps of the Atlantic coastal plain between Norfolk, Va., and the Savannah River, have been investigated by Dr. F. A. Melton and Dr. William Schriever of the University of Oklahoma (*Journal* *of Geology,* vol. 41, p. 52, 1933). There are hundreds, perhaps more than a thousand, of these "bays" as they are locally termed; the largest examined are more than a mile in length. The long axes are all parallel, their direction being northwest-southeast. They have practically flat floors and slightly elevated rims, which are invariably higher at the southeast end. Often they intersect, sometimes the larger and sometimes the smaller being complete, as though one were superposed on the other. The region in which they have been examined has been submerged since the probable time of their formation, and they show no relation to the present topographical features. Their investigators can suggest no geological cause for them, but find that the fall in prehistoric times of a loose globular cluster of large meteors, some 400 miles in diameter, descending from the northwest at approximately a 45-degree angle, would account, qualitatively at least, for the observed effects.

COMETS

To the end of November six comets were detected in 1933, less than half as many as in the record-breaking year 1932, when thirteen were found. Three of the six were returns of well-known short-period comets, the Pons-Winnecke comet (1819 III), Wolf's first comet (1884 III), and the Giacobini-Zinner comet (1900 III). New comets were discovered by Peltier at Delphos, O., by Carrasco at Madrid, Spain, and by Whipple at Harvard Observatory. None of the comets was visible to the naked eye. Carrasco's comet was photographed on only one plate and may have been a spurious image.

STAR CATALOGS

Washington. — Important among the primary data that underlie all astronomical theories are the precise directions of the stars with respect to the reference planes of the solar system. The U. S. Naval Observatory at Washington issued in 1933 a catalog of 10,579 stars, together with 2,630 observations of the directions of the sun, moon and planets, the result of thirteen years' work with the nine-inch transit circle (*Publications of the United States Naval Observatory,* second series, vol. 13, 1933). The stars are mostly those used as standards to which the positions of other stars may be referred, and accordingly observed frequently at various observatories. From the solar, lunar and planetary observations, which serve to locate the reference planes, the small correction of one-fiftieth of a second of time was obtained to Newcomb's position of the equinox. The work was directed and discussed by Dr. H. R. Morgan. A more extensive discussion by Dr. Morgan, of 30,000 observations of sun, moon and planets over 36 years, gives a correction of zero to the equinox (*Publications of the American Astronomical Society, vol.* 7, p. 183 1933).

Yale.—The Yale Observatory issued in 1933 the fifth of a series of catalogs based on photographic observations with a wide-angle lens (*Transactions of the Yale University Observatory,* vol. 9, 1933). This contains places of 10,358 stars between declinations 25° and 30° north. Only 48 plates, each nineteen by 23 inches, were used to cover a strip ten degrees wide extending entirely around the sky. The total time at the camera was only twenty hours; 1,300 hours were required to measure the plates. The results fill this catalog and another in preparation. The same stars were observed with the meridian circle fifty years ago; the observing time was 1,600 hours. Since the photographic positions as measured are relative to the boundaries of the plate, some of the stars on each plate must be observed with the meridian circle to provide data for transforming the plate coödinates to fundamental coördinates. For this reason 1,148 of the stars were so observed at Lick Observatory by Dr. H. M. Jeffers. The catalog is part of a world-wide program to observe the brighter stars over the whole, and compare the results with those of a similar program (the *Gesellschaft Catalogs*) carried out a half-century ago.

STARS

Novae.—Most novae or "new stars" have been observed to burst into sudden brilliance only once, the blaze of light in each case being associated with complicated changes in the spectrum. The phenomena have been generally interpreted as catastrophic in nature and perhaps due to a fundamental readjustment in the equilibrium of the star. But there are known several stars, normally irregularly variable over a moderate range, which seem to be recurrent novae, bursting out at unpredictable intervals into great brilliance. One of these, the twelfth-magnitude star RS Ophiuchi, rose suddenly in the middle of August, 1933 to fourth magnitude (multiplying its light fifteen hundred times), fading to tenth magnitude by mid-September. The brightening was detected independently by Sig. E. Loreta of Bologna, Italy and L. C. Peltier at Delphos, O. (*Observatory,* vol. 56, p. 332, 1933). The spectrum showed the successive transformations typical of novae, with some peculiarities, notably the appearance among its bright lines of two of those most prominent in the sun's corona. A previous outburst of this star in 1898 was much less intense.

The Hottest Stars.—The so-called "Wolf-Rayet" stars seem to be the hottest of all. Their peculiar spectra show bright lines indicating extreme excitation and have features in common with the spectra of novae and planetary nebulae. They have long been special subjects of study at the Astrophysical Observatory of the Dominion of Canada, and a theoretical investigation of them is in progress at Harvard Observatory. Dr. C. S. Beals of the Dominion Observatory (*Publications of the American Astronomical Society,* vol. 7, p. 212, 1933) and Dr. Cecilia Payne of Harvard (*Proceedings of the National Academy of Sciences,* vol. 19, p. 492, 1933), making use of recent researches on spectra by Dr. Bengt Edlén of Upsala, Sweden, have found that the temperatures of the atmospheres of these stars are hotter than 50,000° absolute and that the stars fall into two groups, those with abundant carbon and oxygen and those with abundant nitrogen. Miss Payne concludes that different parts of the glowing envelope of one of these stars differ greatly in temperature, that it is a structure similar to a compact planetary nebula. A study of those particular spectral lines arising from metastable states in the atoms of elements (the "forbidden" lines), which have been recognized in the nebulae, the aurora, a few stars, and perhaps the corona (see above, "The Sun"), has been made by Miss Payne, Dr. Menzel and Dr. Boyce, and it is found that these lines successively become prominent in the spectrum of a nova in the order of the excitations necessary to produce them, the excitation increasing with the time (*Proceedings of the National Academy of Sciences,* vol. 19, pp. 581, 641, 1933).

Stellar Composition.—The simplest possible model of a star is a ball with an incandescent surface, surrounded by a uniform atmosphere through which the light of the surface shines. Each element of the atmosphere absorbs characteristic rays from the light passing through; thus the spectrum lines are produced. Each element is conceived as acting independently of the others with which it is mixed, its spectral lines indicating simply its identity and state of excitation; the combined spectrum then gives directly a physical description of the atmosphere. The first adequate explanation of the sequence of observed stellar spectra by Dr. Saha of Calcutta, India dealt with theoretical stars of this model. But this model is much too simple to be adequate in detail. There is in reality no definite boundary between the ball and the atmosphere, different rays coming from different depths; the behavior of a mixture of elements under a given excitation is not the same as the behavior separately nor is the excitation the same in all parts of the atmosphere. Accordingly the atmospheric model developed by the researches of Fowler, Milne, Pannekoek, Russell and others in recent years is quite complicated; it is, however, remarkably successful in accounting quantitatively for stellar spectra. How complicated and how successful is shown in an important paper in the *Astrophysical Journal* (vol. 78, p. 239, 1933) by Director H. N. Russell of Princeton Observatory, reviewing, extending and applying numerically the formulas expressing the intensities of spectral lines in a mixture of gases. The proportions of the mixture are shown to have a great influence on the spectral line-pattern, and a theoretical atmosphere containing hydrogen, iron, sodium and potassium in the proportions 16,000 : 12 : 3 : 1 is shown to give results in close accord with observation, over the common range of stellar temperatures, masses and densities. Dr. Russell discusses remaining discrepancies and possible explanations for them.

DARK MATTER IN SPACE

Dark matter in space makes itself evident in several ways. If thick enough, it completely obscures background stars, making dark spaces on the sky. If thin, it dims objects seen through it, and also, under certain circumstances, reddens their light. If gaseous, it produces dark lines in the spectra of stars beyond it. There is much evidence along all these lines for the existense of large amounts of dark matter among the stars, concentrated chiefly in the plane of the Galaxy. Several contributions to this evidence appeared in 1932 and 1933. A discussion of the distribution of extra-galactic nebulae by Dr. Peter van de Kamp of the University of Virginia (*Astronomical Journal,* vol. 42, p. 97, 1932) leads to the conclusion that the apparent avoidance of the Milky Way by these objects can be wholly accounted for by the presence of a layer of absorbing matter in the galactic plane, thick enough to cut down by fifty per cent the light of bodies seen perpendicularly through it. Dr. B. J. Bok of Harvard has found that, to reconcile the apparent arrangement of the near stars with a reasonable true distribution, enough absorbing matter must be present to reduce by one-third the intensity of light passing through 3,000 light-years of it (*Harvard Observatory Circular* no. 312, 1932). Dr. Joel Stebbins and Dr. C. M. Huffer at the University of Wisconsin have detected with the photoelectric photometer a reddening of globular clusters and B-type stars near the galactic circle, as compared with those far from it (*Proceedings of the National Academy of Sciences,* vol. 19, pp. 222, 597, 1933). Dr. Elvey and Mr. Mehlin at Yerkes Observatory have also found the B-stars near the Milky Way reddened (*Astrophysical Journal,* vol. 75, p. 354, 1932), and Dr. Vyssotsky and Dr. Emma Williams of the University of Virginia have found the same for the clusters (*Publications of the American Astronomical Society,* vol. 7, p. 189, 1933). The evidence of the B-stars indicates much irregularity in the distribution of the obscuring matter. Dr. A. H. Joy of Mount Wilson Observatory has discussed the relation between distance (determined from brightness) and radial velocity among Cepheid variable stars (*Publications of the American Astronomical Society,* vol. 7, p. 218, 1933), and finds that considerable absorption must be present, exaggerating the distances, if the velocities are to be brought into harmony with what we have hitherto learned about the rotation of our stellar system.

BOOKS

The Expanding Universe, by Sir Arthur Eddington (Macmillan, 1933). A brilliant general exposition of present-day ideas regarding the structure of the cosmos, with an account of Sir Arthur's own investigations in the relations of general relativity and quantum mechanics, culminating in his extraordinary equation fixing the number of atoms in the universe in terms of the fundamental numerical constants of physics.

The Composition of the Stars, by Henry Norris Russell (Oxford University Press, 1933). A very comprehensive and compact presentation of the astonishing amount of information that the spectra of the stars give us. This is the Halley Lecture delivered at Oxford in June, 1933 by the Director of Princeton University Observatory, whose original contributions to the field he surveys have been of the highest importance.

Our Stone-Pelted Planet, by H. H. Nininger (Houghton Mifflin, 1933). A book on meteorites, written primarily for the general reader and amateur, but containing much material welcome to students of the field, including a catalog of all known meteorites up to 1932.

The Herschel Chronicle, edited by Constance A. Lubbock (Macmillan, 1933). The life-stories of Sir William Herschel and his sister Caroline, given largely in their own words, from diaries, personal notes and letters, selected and connected into a narrative by Herschel's granddaughter.

Makers of Astronomy, by Hector Macpherson (Oxford University Press, 1933). Biographical sketches of eminent astronomers from Copernicus to the present, including many of the leaders in observation and theory today.

An Astronomer's Life, by Edwin Brant Frost (Houghton Mifflin, 1933). The autobiography of the Director-Emeritus of Yerkes Observatory, with his incisive commentary on the half-century of astronomical progress in which he had a part.

Transactions of the International Astronomical Union, Volume Four, edited by F. J. M. Stratton (Macmillan, 1933). Account of the session of the Union at Cambridge, Mass., in 1932, with reports and recommendations of the Commissions. A comprehensive and detailed review of astronomy in the making, by its makers, technical but very enlightening.

PERSONAL NOTES

Dr. H. N. Russell, Director of Princeton University Observatory, was elected president of the American Association for the Advancement of Science for 1933.

The Draper Medal of the National Academy of Sciences was awarded to Dr. V. M. Slipher of Lowell Observatory, Flagstaff, Ariz. The Gold Medal of the Royal Astronomical Society of London was also awarded to Dr. Slipher.

The Rumford Medal of the American Academy of Arts and Sciences was awarded to Dr. Harlow Shapley, Director of Harvard College Observatory.

The Bruce Medal of the Astronomical Society of the Pacific was awarded to Dr. C. V. L. Charlier, formerly Director of Lund Observatory, Sweden.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Astronomical Society, University Observatory, Princeton, N. J.

Mathematical Assn. of America, Oberlin, O.

National Academy of Sciences, 2101 Constitution Ave., Washington, D. C.

Science Service, 2101 Constitution Ave., N. W., Washington, D. C.

DIVISION XIX

ENGINEERING AND CONSTRUCTION

STRUCTURAL ENGINEERING

By Milo Smith Ketchum

Research Professor of Civil Engineering, University of Illinois

BRIDGES

Golden Gate Bridge.—Excavations for the piers and anchorages are well advanced and concreting operations are going forward in Marin County. The San Francisco pier site 1,000 ft. off shore in water 65 ft. deep has been excavated 20 ft. through rock by subaqueous blasting to within 15 ft. of final foundation elevation. The Golden Gate Bridge will consist of a 4,200-ft. suspension span between towers 746 ft. high above water lelvel, with balanced 1,125-ft. side spans and a steel viaduct structure having a total length of 9,127 ft. The bridge will be 90 ft. wide between stiffening trusses including a 60-ft. roadway and two 11-ft. sidewalks carried along the top level of the trusses. The two cables will be 36¼ ins. in diameter with 830 square in. of steel. The towers will be of cellular leg design 699 ft. high from pier top to center of cable. The site of the San Francisco pier is about 1,000 ft. off shore in water 65 ft. deep. There is no overburden as the tidal flow of 5 miles per hour keeps the rock bare. The pier is 185 x 90 ft. and is designed to rest on rock at El.-100. The entire pier and fender site to the level of the pier foundation to this elevation will be excavated by subaqueous methods. After this has been completed the fender will be constructed, using structural units 27 ft. wide (thickness of the fender) and 35 ft. long which will be sunk to rock, inclosed on the side and filled with concrete. When this fender construction has been extended to form a horse shoe shape, the caisson will be floated into position and the fender will be completed. After placing a sand cushion over the site, the caisson will then be sunk with the usual process of building up the concrete pier until foundation rock is reached. A 3-ft. clearance is provided between the pier and the inside of the fender. With the caisson resting on rock, air pressure will be put on, and a small amount of work will be required under high pressure to build forms under the cutting edge to permit the 3-ft space between the pier and the fender to be filled with concrete up to the original rock elevation. Above this a clay fill will be added up to the bottom of the base block (El.-50). The small amount of form work will be the operation requiring high pressure air. After the space between the pier and the fender is filled with concrete placed by tremie, the caisson will be unwatered. The sand cushion over the foundation rock will then be excavated and the final concreting of the pier completed.

The Golden Gate Bridge is a publicly owned toll bridge and is being built by the Golden Gate Bridge and Highway District. The contract price for the two main piers is $2,935,000. The contract price for the anchorages and piers for approach spans is $1,859,000.

San Francisco-Oakland Bridge. — Foundation work is now well under way on the new bridge connecting San Francisco and Oakland. It will consist of two parts. From San Francisco to Yerbe Buena Island there will be two suspension bridges with a common center anchorage. The two main spans are 2,310 ft. and the four side spans are each 1,160 ft. From Yerba Buena Island there will be a cantilever bridge with a main channel span of 1,400 ft. and anchor spans 510 ft. East of this there will be five large truss spans each 509 ft. long followed by 14 deck truss spans each 291 ft. long. The total length of the bridge from the San Francisco Terminal to the Oakland Terminal is 8¼ miles. The west part of Yerbe Buena Island is a rocky hill of considerable height. Here the roadway will pass through the largest vehicular tunnel in the world, the bore of which is 80 feet wide, 60 feet high and 540 feet long.

The main bridge will have two decks; the upper deck provides six lanes for fast passenger cars and light trucks; the lower deck provides a 31-ft. roadway with three lanes for heavy and slow moving trucks and two railway tracks for interurban service. It will accommodate without serious congestion 16,000 vehicles per hour which corresponds to a traffic of 30,000,000 vehicles per year or about seven times the present vehicular traffic. In the west bay, the vertical clearance from high water for ships is 216 ft. East of Yerba Buena Island under the cantilever span the clearance is 185 ft. These clearances are ample for all modern freight and passenger ships.

The estimated cost of construction contracts is $60,000,000 to which must be added interest during construction for a period of three and one-half to four years, together with other charges for contingencies, engineering administration, legal services, property damages, etc., amounting to approximately $15,000,000 and depending largely on interest rates, discounts, etc., making the probable total capital expenditure of $78,000,000. The California Legislature in 1929 established the California Toll Bridge Authority to provide funds for the bridge and authorized the Department of Public Works to design it. It will be financed by money provided by the Reconstruction Finance Corporation as a self liquidating project. Tolls will be charged for passing over the bridge until the bonds have been paid off. Thereafter, the bridge will become free.

The four major substructure contracts representing $14,000,000 have already been awarded. Excavation for the west cable anchorage has been completed and the concreting of the first channel pier has been carried above the waterline. This consists of a cofferdam of steel sheet piling 52x122 ft. which was dredged out to rock. Its depth averages about 90 ft. The concrete was then placed under water with 4-yd. bottom-dump buckets to within about 10 ft. of the surface. The cofferdam was then pumped out and the last 10 ft. to water was placed in the dry. The central anchorage, 92x197 ft., will be built by the same method. The piers of the east suspension bridge will require floating caissons.

Long-Span Concrete Arch in California.—The California division of highways has recently completed a reinforced concrete arch of 320 ft. span over Bixby Creek, 15 miles south of the Monterey Peninsula. The arch is of open spandrel design with two ribs 4½ ft. wide, 5 ft. thick at the crown, and 8 ft. 9 ins. thick at the spring line. The rise is 120 ft. The superstructure consists of standard 30-ft. girder spans supported on columns that are split for part of their length near the top to take care of deck expansion. The piers at the abutments are of a hollow box section 12 ft. wide at the top. An outstanding feature of the construction was the use of trestle-type timber centering 240 ft. high. At the maximum section a vent consisted of two 10 x 10 in. vertical posts 18 ft. apart and two 10 x 10 in. batter posts with a total base spread of 70 ft. The batter posts were carried to within 50 ft. of the top. The concrete in the rib caused a 5/16 in. settlement due to crushing of the timber joints and 1½ ins. due to elastic deformation. The contract price of the bridge was approximately $200,000.

Foundations of the New Orleans Bridge. — The caissons for the piers of the New Orleans Bridge will be sunk to a depth of 180 ft. below the Gulf level. This bridge over the Mississippi River has a total length, with approaches, of 23,000 ft. The river crossing is a cantilever structure with a 790-ft. main span and 530-ft. anchor arms. It will give railway and highway connections into New Orleans from the northwest. The caissons will be sunk by the open well method through semifluid silt forming the river bottom and then through alternate layers of sand clay and gumbo to a compacted sand. The piers will be protected from scour by willow mattresses woven at the shore and weighted and sunk at the site of the pier. The main caissons will be 65 ft. wide and 102 ft. long. To reduce the soil pressure to 3.8 tons per sq. ft. at an elevation of 170, dredge wells will be filled with water instead of concrete. The bottoms of the caissons, however, will be supported on tremi concrete seals 19 to 21 ft. thick. The top of the caisson is at El.-35. Above this timber cofferdams will be constructed so that the top of the caisson may be unwatered for pouring of the pier base dry. The caissons will be started by the sand island method. A steel shell 120 ft. in diameter is sunk to the willow mattress and filled with sand approximately to the water level. The concrete caisson is then constructed in the dry on this artificial island. When the caisson has penetrated the river bottom to a sufficient depth, the shell is removed and used again at another site.

Aluminum Bridge Construction.— A highway bridge, Smithfield Bridge in Pittsburgh, Penn., has had 700 tons dead weight removed by the substitution of aluminum in the roadway floor in place of the steel construction. The old bridge was designed by Gustave Lindenthal and was erected across the Monongehala in 1882 and was to replace the first suspension bridge of John A. Roebling. The first covered wooden bridge was erected more than 100 years ago. The present bridge as built had two identical spans 360 feet long of double eliptical trusses, spaced 25-ft. 8-in. centers, carrying a roadway suspended between the trusses by pin-connected hangers. Both steel and wrought iron were used in the construction of the bridge. A third truss was added to each span in 1890, 20 ft. 8 ins. upstream from the existing bridge to provide a second roadway, the piers being built long enough in the original construction to provide for the addition. At first one street car track was placed on each side of the middle truss, but in 1911 the east truss was moved 4½ ft. farther upstream widening the west roadway to 24 ft. 8 ins. to provide for both car tracks. The present floor system was installed under the street car tracks, while the floor system of the west or downstream roadway remained the same as in 1882. The highway floor consisted of wrought iron plate girder floor beams and six longitudinal stringers supporting a laminated timber floor 11 in. thick surfaced with two rows of steel plates on each side of the two traffic lanes. The floor system of the east roadway consisted of floorbeams and four lines of stringers, the track ties rested directly on the stringers.

In 1928 the stresses in the lower chords were reduced by welding steel bars to the eye bars. In 1932 the bridge was redesigned by substituting structural aluminum alloy shapes and plates for steel and iron shapes and plates in the floor system. The design of the aluminum floor beams and stringers was similar to the steel members except for a saving of material. The floor system of the highway side of the bridge consists of a 7/16-in. tread plate as decking, supported on 7-in. channel joists spaced 8 ins. on centers, which joists rest on intermediate and main floor beams. The effective span of joists is 9 ft. 2½ ins. At the middle of each of these joists a transverse 8½-in. channel is rigidly attached as a distributing member to cause several joists to compensate in carrying a wheel load. A pavement or surfacing of cold lard asphaltic mixture 1½ ins. thick forms the wearing surface of the roadway. The projections of the aluminum deck plate provide an anchorage to prevent the material from creeping under traffic. The side walks are carried by aluminum framing and decking. The surface is ½-in. aluminum plate. No painting is required for the hand rail. The aluminum was a new aluminum alloy known as 27 st. The design of the floor system was based on 15,000 lbs. in tension and compression. Each panel load was reduced 28.9 tons making a total reduction in weight for 26 panels in the bridge (two spans) of 751.4 tons or a little over one ton per lineal foot of bridge. The total contract price was $276,346 of which $192,000 was for the fabricated aluminum.

Self-Anchored Suspension Bridge. —A self-anchored suspension bridge 450 ft. total length and 225 ft. main span has recently been constructed over the little Niangua River near the Missouri River by the Missouri State Highway Department. Unique features of the design consist of an unusual arrangement of the strands in the cable, the use of rolled beam sections for the stiffening girders, the use of built up or laminated cable clamp, and method of the expansion movement. The bridge was designed for a live load of H 10, one lane with an impact allowance of 30 per cent of the live load. A basic stress of 18,000 lbs. per sq. in. was used in the structural parts. The cable was designed for a unit stress of 65,000 lbs. per sq. in. Each cable consists of four 1½-in. galvanized strands. The individual wires have an ultimate strength of 225,000 lbs. per sq. in. and a modulus of elasticity of 24,000,000 lbs. per sq. in. The total cost of the bridge was $36,914 for a length of 523 ft. This gives a cost of $70.58 per lineal foot, or a cost of $3.52 per sq. ft. of floor area.

Deepest Bridge Piers. — The world's deepest bridge piers have been formally approved by the U. S. Bureau of Public Works. The four major piers for the highway bridge across Atchafalya River at Morgan City, La., are the deepest yet constructed, extending 176.5 ft. below low water as compared with 162.5 ft. for the piers of a bridge at Hawkbury, Australia. The piers at Morgan City will be the deepest for only a short time as the piers for the new Mississippi River Bridge at New Orleans are expected to reach a depth of 185 ft., and piers at San Francisco will reach even a greater depth.

BUILDINGS

St. Louis Auditorium. — The new municipal auditorium is 322 ft. east and west and 493 ft. north and south. The height from the street to the ridge line of the main area is 162 ft., while the interior height of the arena from floor to ceiling is 90 ft. The structure itself covers 3½ acres. It is unique in that it is two buildings in one separated by a stage common to both. On one side of the stage is a theater, opera house and concert hall. On the opposite side is a great arena, in effect a 12,000-seat concrete stadium roofed over with steel trusses of 266-ft. span. The arena with the exception of the roof trusses and the columns supporting them is of reinforced concrete. The theater portion is also of reinforced concrete up to the second floor level, but balconies are supported on steel framing, and there is more steel framing than in the arena. The foundations are on caissons sunk to solid rock, while spread footings are used for the columns in the arena area. In the Music Hall a 6-in. concrete slab and girder floors are used. Flatslab floors designed for 300 lbs. per sq. ft. are used in the arena and exhibition floors. Several long span trusses are required. H-sections are used extensively for truss members. The trusses over the arena are 266-

ft. span and are 50 ft. deep and are spaced 24 ft.

The auditorium contains 4,000 tons of structural steel. The theater with 1,560 tons of structural steel presented no unusual problems. The heaviest truss which weighs 51 tons was erected with two 20-ton 100-ft. boom guy derricks, one on each side, and one 10-ton guy derrick. With the theater steel in place, the 20-ton girders were used to set two 15-ton steel stiff legs on the concrete floor. The erection of the stage steel was difficult. The bottom chord of the proscenium truss is 147 ft. above the stage. The third unit, the roof over the arena, contained 1,800 tons of steel. The steel work consists principally of nine trusses of 266-ft. span weighing 90 tons, each set on columns 38 ft. long. The center sections are 93 ft. above the floor and are 50 ft. deep at the center.

Building Designed for Heavy Load.—The *Times-Star* Building at Cincinnati, O., is designed for a 2,100-lb. load. The building consists of two sections; the front portion 136 x 80 ft. is a seventeen-story steel-frame tower, while the rear six-story portion 136 x 200 ft. is of reinforced concrete with floors of the slab type. A basement and sub-basement extend under the entire building. The main shaft of the tower starts at the seventh floor and is about 77 ft. square, reduced by numerous offsets as the tower rises to its height of 235 ft. above the sidewalk on Broadway. The tower and manufacturing section are insulated against sound transmission and vibration by a ½-in. expansion joint. The building is located directly over an old canal now filled. The bedrock consisted of hard rock 110 ft. above Broadway overlain with soft layers of blue clay. Pile foundations for both sections of the building consisted of steel tubes driven with rock filled with concrete and capped with reinforced concrete. The steel piles are 10 ins. to 16 ins. in diameter and 16 ins. thick.

DAMS

Boulder Dam.—At the close of last year the preliminary stage of construction on the Boulder Dam project including the diversion of the river had been completed, the building of the permanent coffer dams, excavating the dam site and concreting the dam to an elevation above flood level. On Dec. 15, 1933, more than 800,000 cu. yds. or about a fourth of the total of 3,400,000 cu. yds. of mass concrete in Boulder Dam was in place. If present progress is maintained the mass concrete will be completed May 1, 1935, or two years and three months ahead of the contract time. In addition to the placing of the balance of the mass concrete in the dam there remains to be completed the remaining major features; the intake towers, the plate-steel pipe in tunnels, the canon-wall outlet works, the downstream tunnel plug outlet works, the power house and the removal of the downstream coffer dam and rock barrier.

Concrete problems of a magnitude never encountered in dam construction provide one of the interesting features of construction. They result directly from the record-breaking height and the great mass of concrete. In recent years it has been observed that the combination of rapid placing, rapid hardening cement with attendant greater evolution of heat, and higher dams have resulted in increasing the volume change in mass concrete and has increased the number and width of contraction cracks. In high dams it has become necessary to have both transverse and longitudinal expansion cracks. The primary cause of cracking is volume change resulting from temperature variations. A special cement was developed which generated much less heat in setting. This special, low heat cement has the following characteristics as compared with commercial cements: (a) heat generation about one-third less, (b) marked improvement in workability of concrete with lower water cement-ratio, (c) greater uniformity of concrete as a result of blending and controlling composition, (d) less rapid strength development but probably greater strength in mass concrete.

Castlewood Dam.—On Aug. 3 the Castlewood Dam situated on Cherry Creek 35 miles southwest of Denver, Col., failed due to a flood of unprecedented depth which topped the dam to a depth of 1 ft. over its entire length. The dam consisted of a rock fill placed down stream from a masonry wall and paved with large masonry blocks. The length of the dam was about 600 ft. and the maximum height above the stream-bed about 70 ft. Failure was due to erosion of the lower toe of the spillway located over the top of the dam or to displacement of the rubble masonry in the spillway section. The water from the dam flooded Denver streets adjacent to the creek. Two lives were lost, 50 head of live stock were drowned and a number of bridges were destroyed or partially wrecked. The damage has been estimated at $1,000,000.

The Prettyboy Dam.—Due to unforeseen poor rock conditions that were revealed after work had started, it was necessary to completely redesign the Prettyboy Dam supplying water to the city of Baltimore. The original contract, amounting to $997,000, provided for a gravity-type dam containing 109,600 cu. yds. of concrete and requiring 71,000 cu. yds. of excavation. The ultimate contract payment on the project was approximately $2,385,000. The concrete was increased to 192,500 cu. yds. and the excavation to 418,000 cu. yds. The revised plans have provided for a concrete gravity section 682 ft. in length with a concrete transition section and corewall extending an additional 163 ft. into the west side. The height of the dam from tail water to crest is 133 ft. The spillway consists of four 68½-ft. overflow sections with a concrete apron extending 215 ft. downstream from the upstream face.

Multiple Arch Dam in Texas. — The Hamilton Dam on the Colorado River near Burnet, Tex., has an aggregate length of 8,377 ft. It consists of a series of concrete structures the main portion of which is a multiple arch bulkhead 1,960 ft. long having 28 bays of 70-ft. span cc of buttresses with a maximum height of 154 ft. It will impound 900,000 acre ft. of water for hydro-electric power.

Metal-faced Gravel Dam in New Mexico. — The middle Rio Grande Conservancy District in New Mexico has now under construction a dam on the Rio Chama River. The dam when completed will be gravel fill with 1½ to 1 upstream slope and 2 to 1 downstream slope with a crest length of 1,200 ft. and a maximum height of 170 ft. above stream-bed. The dam will contain about 515,000 cu. yds. of material. The gravel fill will be protected from percolation and wave action by a water tight welded diaphragm of steel or ingot iron plates placed directly upon the upstream slope of the fill.

COLORADO AQUEDUCT

A 239-mile aqueduct is being constructed to deliver an ultimate supply of 1,500 second ft. of water from the Colorado River to the Metropolitan Water District composed of Los Angeles and twelve adjacent cities in Southern California. The aqueduct includes 91 miles of 16-ft. horse shoe shaped tunnel, 65 miles of concrete-lined open canal, 55 miles of concrete conduit and 27 miles of siphons. Preliminary work has been begun on the 13-mile San Jacinto Tunnel, the longest bore of the project, and the construction program is being planned to meet the scheduled date of completion of this contract, December, 1938. Camps have also been opened for constructing 26 miles of the Coachella tunnel by force account work. The total cost of the tunnels is $31,400,000.

YOSEMITE HIGHWAY TUNNEL

A 4,230-ft. tunnel has recently been completed on a relocation of the highway to the Wawona approach route into the Yosemite National Park. The tunnel is driven through solid granite. The tunnel is of semicircular sections with a 14-ft. radius on a 5-ft. spring line. An additional 12-in. bottom excavation provided for a 5-in. backfill and 7-in. concrete pavement. The pavement is 24 ft. wide corresponding to the shoulder width of the open roadway, with 1-ft. curbs and a 3-ft. walk on one side. The net tunnel length is 28 ft. wide with a maximum height of 19 ft. at the crown of the arch. This section has 16.6 cu. yds. of material per lineal ft. of tunnel. The formation is solid granite of uniform texture. The alignment is tangent on a 5 per cent grade. Horizontal side galleries or adits were driven from the main bore for natural ventilation and ventilating equipment. A large adit, 14 x 14 ft., was driven at the midpoint and small adits, 7 x 6 ft., were driven 1,000 ft. from each end.

The heading and bench method was used in driving the tunnel. The original drilling plan called for the 10 x 11-ft. top center height to be advanced as rapidly as possible. Behind this heading four drilling machines swung on cross-arms from a horizontal bar, drilled parallel ring holes 3 ft. apart to break out the remaining portion of the tunnel above the bench level. In shooting the 20- to 23-ft. bench rounds, six or seven rings of top holes were fired in conjunction, using delay detonators to secure proper sequence. This method was not satisfactory, and as an improvement the width of the heading was increased to 18 ft. and ring drilling eliminated. Columns were set up in the heading and the machines were swung from cross-arms, drilling holes varying from 13 to 19 ft. deep. Bench holes drilled parallel to the center line were the same depth as the heading holes. Horizontal bars were placed across the tunnel, one 1 ft. above grade and the other at the spring line. Clamped to these bars was a vertical curved bar free to slide horizontally, and extending into the tunnel section. Machines were swung from this bar to drill the wing sections. The tunnel was advanced with a daily average of 13 ft. The method of driving was later improved to obtain a driving average of 16 to 20 ft. Only 745 ft. of tunnel required lining. The lining is 18 ins. thick at the spring line and 12 ins. thick at the crown, and 15 ins. thick at the greater point of the arch. Reinforcing steel 1½ ins. from the inside wall consists of ¾-in. bars spaced 12-in. centers. The 7-in. concrete pavement is placed on a 6-in. sand cushion. No ventilation of the tunnel is required for light traffic; when the traffic is heavy a variable speed 25 H.P. electric motor supplies 300,000 cu. ft. of air per minute.

RESEARCH IN STRUCTURAL MATERIALS

Cold-driven Rivets. — Cold-driven rivets have been used in the 10,000,000 cu. ft. gas holder built for the Philadelphia Gas Works, by the McClintic - Marshall Corporation. Tests made with hot and cold rivets showed the superiority of cold-driven rivets. Better filled holes resulted, higher yield points were the rule, and shearing strengths exceed 75 per cent of the ultimate strength. The heaviest work on the gas holder was with 1⅝-in. rivets with 2 3/32-in. plates. The tests of hot- and cold-driven rivet steel showed that the cold-driven rivets have a decided advantage in shear over hot-driven rivets; in double shear they developed an elastic limit 76.5 per cent greater, while the average ultimate strength was 6½ per cent greater. A study of the characteristics of hot- and cold-driven steel rivets are also given in *Bulletin No. 210* of the Engineering Experiment Station of the University of Illinois. This study shows excellent results for cold-driven rivets.

New Timber Connectors.—Several timber structures have been built in this country with the ring-type connectors developed in Germany. It consists of an annular ring with diameters ranging from 3 to 11 ins. The cross-section is rectangular and there is a tongue and grove break to allow expansion without change of alignment. The ring fits into a circular grove cut into adjacent faces of the wood members they connect. Half of the ring is in each member, with a bolt through the center to hold the ring in place. An 80-ft. Warren-type truss was recently built with these connectors for logging operations in Washington. The bridge was designed for Coopers E-50 loading. The panel lengths are 10 ft. and the height 12 ft. Design calculations indicated a saving in the 80-ft. truss of 6,000 ft. b. m. and 46,000 lbs. of iron, principally in heavy angle blocks and vertical rods.

Fireproofing Wood. — Extensive tests for fireproofing wood by impregnation with chemicals have been made by the U. S. Forest Products Laboratory. None of the methods thus far is satisfactory. There is no method that is free from objectionable features such as the corrosion of metals, interference with gluing and injury to the strength and other desirable qualities of wood.

Concrete.—An outstanding development in 1933 has been the use of vibratory methods of placing concrete. This development has resulted in a large number of papers describing the various methods of concrete placement by high speed vibratory machines, the properties of concrete so placed, and special features of vibration as applied to dams, bridges, pavements, roof slabs, water mains, and various concrete products. The development has been accompanied by a very complete program of tests. A second major field of concrete research during the year has been in connection with concrete problems presented by the construction of Boulder Dam. Among the studies that have been made have been very extensive cement investigations including the effect of adding siliceous materials and of controlling the various chemical compounds formed in the hydration of cement. The cement investigations alone represent more work in the development of new cements than has been done in the previous decade. Special studies in connection with the cement have been made on the volume changes, the generation of heat and the compressive strength produced. The work has been done mainly at the laboratory of the Bureau of Reclamation at Denver and the University of California. Further studies have included the development of apparatus for making and testing mass concrete, accelerated strength tests for field control of concrete, properties of mass concrete as affected by size of aggregate, the elastic and thermal properties of mass concrete, and studies of heat generated and strength secured under both ordinary conditions and conditions existing within a large mass.

Two outstanding applications have been made of the use of ornamental concrete, one on the Bahai Temple at Wilmette, Ill., and the other on the Department of Justice Building at Washington, D. C. The work has been carried on in both cases by J. J. Earley of Washington, who is probably the foremost architectural sculptor of the country. The year marked the completion of the American Concrete Institute Column Investigation and a final report of the Committee to the American Concrete Institute. Another investigation which was finished during the year was the Investigation of Reinforced Concrete Arches carried on at the University of Illinois under the auspices of a Committee of the American Society of Civil Engineers. At the annual convention of the American Society for Testing Materials there was presented a symposium on the significance of tests of concrete and concrete aggregates, which consisted largely of a review and analysis of the significance of present tests made on concrete and of their suitability.

Two rather novel types of construction have been promoted during the year. Reinforced brick work, while it has been known for more than a century and has been used to an increasing extent during recent years, has been given more careful attention with regard to the development of information for engineering design. A number of investigations are being carried on throughout the country at the present time. The second type of construction is a combined timber and concrete bridge floor intended especially for use in highway bridges as a type intermediate between reinforced concrete and ordinary timber floors. This type of construction gives promise of becoming of considerable commercial value.

In the field of dam construction some tests and analysis have been described during the year, among them being studies of deflection and temperature in a trial load arch dam, tests of a model of an arch dam, and studies of the stability of concrete gravity dams and of a new type of arch dam. In the field of highway construction some analysis has been done on the design of joints in concrete pavement and of general concrete road design. Attention has been given to the interlocking of aggregates at joints and cracks in concrete roads.

MECHANICAL ENGINEERING

By Calvin W. Rice
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and
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INTRODUCTION

The year 1933 has been a truly amazing one in America. It is early to say, however, whether it is the end of an old epoch or the beginning of a new. For the first time in the history of the country power has been placed in the hands of the Government to control not only the intensity of operation of labor but also the amount of employment of machinery. To reduce competition between human labor and what came to be known as the iron man, an obligatory leisure was imposed on the latter. Some codes eliminate the installation of new labor-saving machinery. Others, as for example the textile industries, provide for only a certain number of hours of operation of machinery per week. Still others, as the code for the steel industry, prohibit installation of new productive machinery such as blast furnaces, Besemer converters and open hearth furnaces.

That under these conditions progress in all branches of mechanical engineering has been materially decelerated goes without saying. Whether that indicates a merely temporary condition to meet a national emergency or the beginning of a new era where a definite brake will be put on engineering progress, remains to be seen. The possibilities in the latter direction are, however, viewed with great apprehension by a goodly share of the engineering profession.

In the preparation of this article extensive use has been made of the annual reports of the Professional Divisions of The American Society of Mechanical Engineers.

POWER GENERATION

"Uneasy lies the head that wears a crown." All power, with extremely small exceptions, generated today is obtained either from the fall of water or the combustion of fuel so that coal, water, oil and natural gas may be justly called the royalty of power generation, and emphasis was made during the year that there are growing indications that ere long, that is, possibly within ten years, and probably at an earlier date than is expected today, a tremendous shift may occur to new agencies of production of energy with such changes in the whole industrial structures as will amaze those who see them.

The work is still in the early laboratory stages but the outline of what is coming is becoming less nebulous every day. We are referring, of course, to what has come to be known as atomic energy. In the laboratory it has been already established that conversion of energy into matter and *vice versa* is not only to be expected but to some extent has been already accomplished. The vistas opened by recent work on hydrogen resulting from the production of the so-called heavy hydrogen have thrown a light on possible methods of power generation by way of combining two atoms of hydrogen into one atom of helium and obtaining an appreciable amount of power as a by-product of the reaction which apparently is exo-energetic, that is, delivering energy while it takes place. Instead of creating carbon monoxide and carbon dioxide out of fuels and atmospheric oxygen and as a by-product obtaining the heat by which we raise steam in our boilers or run Diesel and gasoline engines, it is now possible to combine hydrogen and obtain helium, maybe carbon or beryllium and, as a by-product of the reaction, obtain power energy. If it shall be possible to obtain cheap power in huge quantities it would have an effect on our industries and even on the social structure, and inaugurate a new power age.

STEAM POWER GENERATION

Abroad increased attention is being paid to new boilers among which may be mentioned the Velox in which pressure combustion of a practically explosive kind is used, and a boiler consisting of one tube, which in some units is as much as one and one-half miles long. In this country work on the developments of mercury vapor units is continuing, while abroad a suggestion has been made to use in double fluid boilers anhydrous aluminum bromide as one of the agencies.

In the meantime significant progress has been made in maintaining operation of boilers. Pulverized coal, fuel oil and gas-fired boilers have in many instances been on the line for five to six months. The trend in the design of large capacity boiler units appears to be toward high pressures and temperatures with a relatively small amount of boiler heating surface followed by a relatively large economizer section and a relatively large air preheater. A new form of water tube boiler has been developed for a range of capacities up to 80,000 pounds of steam per hour, particularly suitable for pulverized coal, oil, or gas firing. These units incorporate a water-cooled furnace wall and floor or ash screen as an integral part of the boiler circulating system.

Considerable progress in the use of preheated air and stoker fired boilers has been made and, for example, at the Delray Station of the Detroit Edison Company an underfeed stoker usually operated with preheated air at not more than 400° F. was operated for one week, night and day, with air at a temperature of 500° F., with very little damage to the equipment. At the same Company an experimental turbine operating with steam at 400 pounds and 1000° F. temperature at the throttle, has been in operation for a total period of 7,800 hours. This combination of pressures and temperatures is considerably in excess of world practice.

Several fires of lubricating oil systems of turbines have led to means of fire-proofing such as placing oil storage on the basement floor, completely separated from the turbine. There is also under way an active search for non-inflammable lubricants to replace oil, and definite designs have been proposed for completely separating the high pressure hydraulic system from the lubricating system and using a non-inflammable liquid for valve operation.

FUELS

Because of competition between fuels an effort is made to raise their quality, thus, for example, dedusting of coal prior to cleaning has been introduced to make the subsequent cleaning more efficient and in wet methods to make drying of the coal easier. The dust may be then burned either in pulverized form with or without further pulverization or in suspension as with the Straton furnace. In Central Station practice the unit system of pulverized coal firing is making progress. The same applies to slag-tap furnaces. Several laboratory test methods have been proposed to measure the grindability of coal in order to predict the performance of large pulverizers, and tests have been made on commercial pulverizers to determine their relative capacity, power and grindability. This tendency towards development of test methods is significant of present trends where, in an effort at greater economy and higher efficiency of operation, less and less is taken for granted.

The competition between industries in this field has been particularly active in the domestic use of fuel. The Anthracite Institute and individual anthracite laboratories worked intensively on the development of completely automatic heat machines, including such novelties as a steam boiler which supplies steam for an air heater and humidifier in winter, for a refrigeration system for cooling and dehumidification in summer, and for domestic refrigeration and hot water supply throughout the year. Oil burner manufacturers vigorously pushed their products, and, faced by such competition, the National Coal Association, primarily interested in bituminous coal, incorporated Bituminous Research, Inc., a non-profit corporation owned by coal producers, and their Association.

Efforts to reduce smoke and dust were vigorously continued and in some instances extended to what might be called the root of the evil. Thus, in Chicago, evidence has been found that smoke from the area outside of the city limits causes a nuisance inside Chicago and that with the wind in the opposite direction Chicago smoke goes over the suburbs.

There appeared to be greater agitation than ever for the removal of fly ash from the stacks of solid fuel fired plants. Here, in addition to means of suppression, efforts have been directed toward the development of a product from fly ash that will make the collected material a source of profit rather than expense. Those that were sponsored by the Detroit Edison Company resulted in the development of an artificial stone of some promise made from fly ash and experiments have been made in the use of ash as a substitute for a part of cement in cement mortars. The Batelle Memorial Institute has developed the method for the production of a cellular product which has excellent insulating qualities and high strength.

MACHINE SHOP PRACTICE

Conditions were particularly unfavorable to new developments in this field. Nevertheless there has been progress and, for example, a new method of precision grinding has been developed capable of completing machining in one operation, with one tooling, parts such as camshafts and crankshafts which hitherto required several operations and several tooling applications.

Probably the most outstanding development in new machine tools is the application of external broaching to the shaping of many parts formerly considered as work for the planing machine, the milling machine and the lathe. That the new process has many attractive features is demonstrated by the fact that those who have already made installations are anxious to extend the practice to other components in their line. The result has been a renewed activity on what might be termed the competitive processes, and as is usual with developments of this kind, the question of the economic applicability of external broaching is bringing forth a tremendous amount of effort from the exponents of these competitive processes.

Foundrymen and metallurgists developed several types of cast irons with the result that whereas only a few years ago cast iron has been considered as fit only for use in parts not subject to heavy stresses, to date, as in the new Ford V-Eight, such a responsible and highly stressed part as the crank shaft is made of cast iron instead of a forging. In the steel casting industry valuable experience has been gained in the production of low alloys, steel castings.

RAILWAY ENGINEERING

This industry, which in the past has been considered as ranking among the first in conservatism, has within the last year shown willingness to make changes little short of revolutionary. The Union Pacific announced its intention of placing into service a streamline 3-car train capable of developing a speed of 90 miles per hour. The French State Railways have already introduced for main line service the Bugatti express rail car, likewise of streamline construction, equipped with four 200 horse power Bugatti engines and capable, as has been shown by trial runs, of attaining a speed of 107 miles per hour. On the other hand an announcement from Moscow, Russia states that successful tests have been made with a new type of electrical railroad, run on ball bearings and capable of making 109 miles an hour. The trains run not on tracks but in a single shallow trough. The cars are mounted on two balls on the side which are somewhat flattened, with electric motors inside. Obviously the sudden interest in superior speeds has been created by steady progress of commercial aviation. Whether or not it will cause prospective flying passengers to stay on the ground and use the rail instrumentalities of transport remains to be seen. It may be stated, however, that three miles a minute are already used in air transport and four miles a minute are confidently expected in the comparatively near future.

The use of gasoline for rail cars is rapidly being abandoned and may be completely outmoded in a very short time because of its danger. The Southern Pacific lines have conducted tests on Butane fuel for rail motor equipment and have secured some unusually interesting results. Among other things they found that Butane fuel is economical, has a clear and odorless exhaust free of obnoxious fumes, and handles easily. In the field of steam locomotives a high pressure locomotive with water tube fire box and triple expansion cylinder arrangement, has been built by the American Locomotive Company for the Delaware & Hudson Railroad. A most interesting locomotive of the multi-pressure type which has been in service on the Canadian Pacific for the last two and a half years has been found to show considerable economy. A locomotive of similar design on the New York Central is still undergoing tests. It is reported that the Baltimore and Ohio is building a single expansion 4-6-4 Pacific type locomotive with water tube boilers having a steam pressure of 375 pounds per square inch.

Because of interest in greater speeds the matter of streamlining in connection with locomotive design has been receiving a good deal of attention. The American Locomotive Company has prepared the complete design of such a locomotive but has not yet induced anyone to give it an order, while wind tunnel tests of locomotive streamlining are conducted by the National Research Laboratories at Ottawa, Canada. At the Scotswood Works of Armstrong Whitworth & Company four 1,700 brake horse power units have been built for Argentina. They are capable of a maximum speed of 70 miles per hour and one of the locomotives has two sets of gears, one for freight service and the other for fast passenger service. The Russian railroads are experimenting with a huge Garratt locomotive. A good deal of research in the railroad field is going on, one of the subjects attracting considerable attention being the use of stainless steel. A Scientific Board to assist the Railway Co-ordinator has also been established.

INTERNAL COMBUSTION ENGINEERING

The work of the past year has been directed into several distinct channels. In the field of the ignition-compression engine very little progress has been achieved. New manifolds and distributors have been, however, tried out to enable the present gasoline engines to operate with less inflammable fuels. This has been due largely to several disastrous fires on motor boats and gasoline driven yachts. No very striking success has been achieved in this direction, if one can believe published information.

In the field of the Diesel engine, quite material progress has been accomplished in several directions. The matter of building a small high speed engine of the Diesel type, such as would be suitable for operating a motor car, may be considered completely solved from a technical point of view and, as a matter of fact, a number of Diesel driven vehicles are already in operation, particularly in Europe. This does not mean, however, that the gasoline engine will be immediately displaced by the Diesel because of the inherent advantages of the former, its wide use, and particularly the fact that in practically every town or village there is available a mechanic understanding the operation of the motor vehicle gasoline engine and capable of doing minor repairs and adjustments. For the Diesel engine this system of maintenance and repair is still to be created and until this is done it is not easy to expect a mere advantage of using a cheaper fuel to change the power plant of the present standard type vehicle.

The large size Diesel has accomplished some very remarkable progress in the past year. It is reported that a stand-by central station Diesel engine operated on a 2-stroke cycle, showed a remarkable economy of .34 lbs. per brake horse power developed.

In marine work there has been a continued tendency in the direction of increased rotative speeds, higher piston speed, reduced weight and the use of mechanical injection fuel systems. Considerable progress has been made during the year particularly in the development of welded steel frames for Diesel engines as a means of reducing weight. When the first information leaked through some years ago to the effect that the Germans built a ''pocket battleship'' driven by Diesel engines weighing 17 pounds per horse power, this was met with practically universal skepticism. In the last yea however, the Sulzer Company buil a large engine with a specific weigh of 22 pounds per brake horse powe Somewhat similar engines have bee built by the Lukenweld Company i this country, and still further reduction of weight may be expecte from the use of cast aluminum fo engine framing and for example th Sun Shipbuilding Company has proceeded with the development o welded engines with aluminum accessory parts.

The U. S. Navy has also begu to show earnest interest in th Diesel engine and the Bureau o Engineering contracted with fiv different engine builders for fiv different types of Diesel engines incorporating some unusual features o design. The Bureau has also mad plans for converting five existin steam tankers to Diesel propulsion using gear drive in order to retai the present shaft.

As regards the employment of th Diesel engine for aeronautics th prospect of its wide adoption seem to be rather dim just now. Germa manufacturers have thoroughly investigated the subject and foun that the creation of a common Diese engine for aircraft would require a least three years of expensive wor and at least in the present state o development of the Diesel engin doesn't promise any very great advantages over the gasoline engin either in the way of reliability or o economy of operation. A very careful study of the subject, however, i continuing in this country, large under the auspices of the Nationa Advisory Committee for Aeronautics and it would be entirely prematur to deny the possibilities of th Diesel engine in this field.

AERONAUTICS

There has been steady progress i several directions. In the first plac the result of accumulating knowledge of the behavior of planes an motors has produced machines o commercial transportation size no only of great power and speed bu of surprising reliability, to such an extent that outages due to mechanical defects have become no more common on the major air lines than they are for example on well kept railroads. From time to time there are still crashes but in so far as one can see they are not as a rule due to the fault of the material. Of the new types the following may be particularly mentioned.

The first more or less complete information as to the design of the Rohrback plane, briefly referred to in THE AMERICAN YEAR BOOK for 1932 (page 630), has been published in England. The machine has apparently not yet been built, however. The De La Cierva has flown in England a new autogiro differing from the former types by the fact that wings have been almost completely eliminated and a single control for the entire operation of the machine has been provided. By eliminating the wings De La Cierva went back in that particular respect to his original design, which consisted of merely a fuselage, propeller and rotor. Incidentally, in the new type the entire control of position is made by the rotor. In France, the French National Bureau of Inventions coöperated with the Swedish engineer Strandgren in the development of a plane working apparently somewhat along the same lines as the Rohrbach. The published statement claims that this machine cannot only hover in the air but actually fly backwards. No public demonstration of this machine has been made. In the United States the National Advisory Committee for Aviation is continuing the study of the Platt machine operating substantially along the same general lines. A huge machine, expected to carry more than 100 passengers built in coöperation with the German Junkers Company by the Soviet authorities, crashed with a heavy toll of life after a week of tests. The most essential feature of this plane has been the practically complete elimination of the fuselage and the extreme use of the thick wing principle.

In the matter of operation the most notable factor has been a gradual approach to a perfect control of blind landing, for example, landing in a fog, the pilot receiving such information as he may need to effect a landing by means of radio waves. Certain mechanical features of the operation of airplanes such as resonant vibration or flutter have been investigated. It is these resonant vibrations which cause breakage of pipes and damage to the airplane structure generally. Their origin and occurrence involve a multitude of complicated phenomena, and it is only comparatively lately that a clear insight into the causes of their occurrence has been obtained. This permitted the U. S. Army Air Corps to formulate new requirements which control the rigidity of airplane structures by a minimum frequency of permissible vibrations as well as develop practical rules for minimizing their danger.

As an example of outstanding achievement may be mentioned the Douglas DC-1 air liner and the following figures may be of interest as showing what can already be accomplished. With two 710-hp geared Wright Cyclone engine (supercharged to 7,000 ft. and using controllable three-blade pitch propellers) and carrying 5,720 lbs. of useful load, giving it a gross weight of 17,500 lbs., this airplane had a maximum speed of 188 m.p.h. at sea level and 210 m.p.h. at 8,000 ft. Cruising with 75 per cent power, it had a speed of 184 m.p.h. at sea level, 190 m.p.h. at 8,000 ft., and 200 m.p.h. at 14,000 ft. With only 62½ per cent power, the speeds at these respective altitudes were 169 m.p.h., 177 m.p.h., and 185 m.p.h. The landing speed was 60 m.p.h., with flaps, at sea levels. This airplane demonstrated the safety of a modern two-engine design by taking off with over full load from an airport at 4,500 ft. above sea level and throttling one engine after a take-off run of 2,200 ft., then climbing to 9,000 ft. altitude and flying 240 miles, still with one motor, to another airport and making a similar take-off. Though this first plane was built for two pilots and 12 passengers, subsequent models will carry 14 passengers, giving it a range of 730 miles with full load, including 1,020 lbs. of baggage and cargo in addition to the passengers.

PETROLEUM ENGINEERING

In spite of the fact that on the face of it the tendency has been to reduce appropriations for development work, the conditions in the industry have been such as practically to force large companies to continue research. It was plain that price competition would be sooner or later restricted as it eventually has been in the latter part of the year under the NRA Code. Because of this, only two kinds of competition remained, and they are cost of production and quality. With the selling price fixed it was the part of the company engineering departments to reduce the costs, and the only attraction that could be offered to the public by oil products was that of quality. It is with this background in mind that one has to consider the engineering progress of the industry.

In the production of oil, the problem of proration has continued to be a thorn in the side of the engineers, the legal aspects of this problem not having been susceptible to solution as have the engineering aspects. Consequently, engineers have been handicapped in designing the most efficient method and equipment for producing fields at the most efficient rate from the standpoint of ultimate recovery. Therefore, the amount of progress actually made in the designing of new oil-lifting methods and equipment is indeed surprising. Some of the chief steps and improvements are described.

In the drilling operation improvements have been made in the gas engine, direct current generating plant for developing power for electric rotary drilling. This kind of plant is particularly valuable because of its inflexibility. In the past year for the first time the steam engine has been introduced of a type sufficient to provide power for all three of the rotating, hoisting and mud circulation operations. The engine is a vertical, twin-cylinder type with a hand controlled variable cut-off and dual drive. A remote control system makes it possible for the driller to adjust the cut-off while the engine is in operation, thereby taking full advantage of the expensive force of steam on any stroke.

The Hydraulic Pressure-Control Completion System permits drilling in the high-pressure wells with positive control of the drilling fluid at the bottom of the hole by means of holding a back pressure on the circulating returns, and avoids the liability of mudding off a pay strata. The Doheny-Stone hydraulic rotary and pressure drilling equipment, consisting of a drilling packer, flush joint pipe, and hydraulic snubbing-in-equipment, has been adopted. Adjustable flow means are used to control the pressure at the surface, thereby enabling the use of the formation gas, while drilling through or below a producing strata to lighten up the fluid column being lifted. This method of completion, with measurement of the oil and gas produced recorded on charts, enables the engineer to make accurate observations on the permeability of the pay strata.

In the matter of lifting oil and gas, the pneumatic pumping heads present one of the most outstanding developments during the past year; the system consists of three main parts, a compression plant, a small preheater at each well (optional) and a pneumatic cylinder or pumping head suspended above and directly connected to the polish rod. The system embodies a small number of moving parts and great flexibility in power and length and speed of stroke.

Where slow speed pumping was desired wells equipped with direct current motor-driven reduction gears have been slowed down to as low as three strokes per minute by the installation of small 2 to 5 h.p. squirrel cage motors, in addition to the regular motor for driving the reduction gear. The large motor is usually allowed to remain coupled to the gear to be used in pulling or cleaning out operations as the power lost in driving the armature of the large motor is negligible.

Great success has been obtained in increasing the production of wells by treating them with acid, plus an inhibitor, for protection of the metal equipment in the well against acid action. The acid most commonly used is hydrochloric acid of a concentration of between 10 to 15 per cent, and the inhibitor is usually an arsenic compound soluble in the acid solution. In general the acid treatment consists of introducing enough oil to cover the casing shoe, pouring or pumping a charge of 500 to 100 gallons of acid through the tubing on top of the oil, and placing another load of oil on top of the acid, after which mechanical pressure may be applied at the well head if necessary to force the acid back into the lime "pay." Usually high pressures are not used until the second treatment, and no more than three treatments will be of any benefit to the well.

As regards the general tendencies, perhaps the most important one in production practice today is toward the realization by the producer that oil recovery is in reality the by-product of gas energy and that pressure maintenance in the oil reservoir is of much greater benefit than pressure restoration because of the slow gas saturation except in comparatively thin layers, with the result that restricted flow methods such as small diameter and tapered-tubing producing strings (with the possibility of using surface and bottom-hole chokes in combination with small strings), intermittent lift, removable bottom-hole chokes in combination with differential pressure regulators and mixing valves, chamber lift, and the plunger-lift methods, are being used even on very small and deep wells.

Slow speed pumping, geared power units of both central station and individual well unit design, back cranks for the pumping of several wells from one prime mover, the requirement of better alloy-steel sucker rods, balls, and seats, working barrels and alloy wrought iron sucker rods, and the endeavor to develop methods of pumping deep wells more economically and with greater flexibility such as the pneumatic head, as well as to develop a satisfactory submerged type pump, are also very noticeable tendencies in production practice.

During the earlier part of the year, there was a great incentive to modernize plants in order to permit the manufacture of gasoline of better quality in respect to anti-knock and volatility. This modernization program included the building or modification of cracking stills and the installation of stabilizing equipment for gasolines. The cracking stills have been built or changed to produce higher anti-knock gasolines by cracking heavier oils to a greater extent, or by "reforming" straight-run gasolines and naphthas. With the advent of "Q gasoline" (regular grade gasoline with tetraethyl-lead in it), the need for the extreme cracking and reforming operations has in many cases diminished, with the result that a lull in cracking-still construction was to be expected and has been experienced to some extent.

In the field of lubricants an unusually large amount of work has been done. There is a growing realization of the necessity of stabilizing oils by removing from them the constituents (usually assumed to be unsaturated compounds) which produce gums and sludges when the oil is in service. This has already been achieved by several processes, such as preoxidation of oil and removal of the products of oxidation before the oil is placed into service. (This process is in the laboratory stage only.) A considerable amount of success has been obtained by the removal of these unsaturateds by means of selective solvents.

There has been also a growing realization that the viscosing of an oil alone does not measure its lubricating properties. In a paper before The American Society of Mechanical Engineers, C. M. Larson showed that the factor of adhesion of the oil to the surface of journal and bearing is of paramount importance in this connection. A process of investigation of lubricants in service or rather after service by infra-red lights has been developed in England (by Dr. R. O. King) where it was also found that lubricating oil up to a certain period improves with service. Incidentally, the realization that a high viscosity oil doesn't necessarily mean a pure oil is expected to lead to the adoption of high lubricity and low viscosity oils with the consequent great saving in power required to operate machinery. Here the theories and facts developed and discovered by physical chemistry are proving to be of the utmost importance in solving what at first appeared to be a purely mechanical problem.

APPLIED MECHANICS

One of the significant events in this field has been the establishment in Italy by the Government of a special institute for the assistance of men working on problems requiring advanced mathematical analysis. Another highly interesting phenomenon has been the increasing interest of mechanical engineers in atomic physics, which has been found to throw a vivid light on certain otherwise obscure problems of thermodynamics and fields related to mechanical engineering. Thus Prof. Karapetoff of Cornell University published in *Mechanical Engineering* an illuminating article on degeneration of gases, leading to conclusions important to mechanical engineers.

The following can deal only with the high lights of research during the year. The stress distribution around the circular hole in a rectangular strip subject to bending has been discussed by R. C. J. Howland and A. C. Stevenson while Prof. H. M. Westergaard gave a geometric interpretation of the stress function in two-dimensional problems. Further development in experimental methods of solving two-dimensional problems of elasticity has taken place during the year. This can be done by the use of bakelite in photo-elastic work together with the "fringe model." In this way a study of stress concentration at the circular hole was made photo-elastically and compared with the theoretical calculations of Howland referred to above and with extensometer measurements made on a steel model.

To a layman this may not seem sufficiently important to be specially mentioned in a survey of the year's progress but engineers understand that it is only by such methods that structures can be made either lighter for the same strength or stronger for the same weight. This saving in weight or increase in strength is made possible by the reduction of what is commonly called factors of safety but is really factors of ignorance. In other words, where engineers are not certain of being able to calculate a stress they make the part so much stronger as to ensure safety. As long as the size of the structure was not too big or the stress not too great this method was wasteful but workable. With our present structures it is not always that an increase in size or weight produces an increase in strength. Thus the first two Quebec bridges fell of their own weight because too much material was added to compensate for the unknown stresses. As a matter of fact, in rapidly moving parts, increase in weight produced by an effort at making a part stronger may make it weaker, and it is only by improved methods of calculation combined with new methods of checking the calculations on models and measuring the stresses in actual structures, that the factors of ignorance may be reduced and structures at once lighter and stronger produced.

Considerable progress has been made in methods of transfer of results obtained on small models to the actual large structures. In this connection one may mention the very interesting experiments on models subjected to the action of much centrifugal force made by N. N. Davidenkow. He found that in order to have in a model the same stresses as in an actual structure the body force must be inversely proportional to the scale of the model.

Occasionally an engineer is happy to report that a certain problem if not completely solved has been clarified sufficiently for practical purposes, and this may be said today with a good deal of truth as to the phenomena of creep which means deformation of metals subjected to prolonged stresses while at comparatively high temperatures. There is still a good deal of work to be done in this direction but the general outline of the solution is now quite evident, and there is very little doubt that presently built structures will not be endangered by this phenomena.

CONCLUSION

From the above review it would appear that certain conflicting tendencies have been clearly evident in developments in the field of mechanical engineering. There has been an incentive to conduct the research due to the present and impeding competition in quality and costs of manufacture. There has been a good deal of scarcity of funds for research work due to general uncertainty of the future. The engineering departments of the companies have not been kept very busy on current problems of production. On the other hand, practically all the larger companies have been receiving numerous inquiries for new products and new designs which were clearly for information primarily and only in comparatively rare cases likely to grow into actual orders. The engineering departments of the companies themselves had time to think of new products and new ways. There is, therefore, a tremendous underground swell of new ideas, new designs and what is even more important, new information. As soon as conditions warrant, this is going to appear above ground in a vast sweep of improvements, changes in processes, new products and new inventions. This is already becoming evident in England where things have been materially improving during the current year and a certain spirit of confidence in the future has been prevailing. In the United States this process is still largely underground.

ELECTRICAL ENGINEERING

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INTRODUCTION

Technical developments in the United States are to a great extent tied up with the demand for them, *i.e.*, with industry. In the electrical field the sponsoring of hydro-electric projects by the Federal Government, the increase in electrical manufacturing in the last half of the year, the increase in the output of utility plants to near the 1931 level, and the improvement in demand for communication facilities all point to increased technical activity. In particular, the great amount of hydro power soon to be available may result in extensive electrochemical development and in the greater use of certain metals such as aluminum.

HYDRO PLANTS

Status of Electric Energy Generation.—The Federal and State governments contemplate extensive hydro development in connection with various aspects of the general recovery program. This warrants a review of the present status of electric energy generation, particularly from the economic point of view. At the beginning of 1933 the Geological Survey reported 15,800,000 hp. installed capacity in water power plants in this country, an increase of 1.6 per cent in a year. To use all the water power available would require about 80,000,000 hp. capacity. Of the 83 billion kw-hrs. of electric energy produced for public use in 1932, about 41 per cent was generated in hydro plants; hydro output increased 11 per cent over that of 1931, whereas steam plant output decreased 20 per cent.

For some years (see previous issues of THE AMERICAN YEAR BOOK) there has been discussion as to whether hydro plants are justified or not. The *Electrical World,* unofficial trade journal of the light and power companies, states: ''Privately owned utilities have already found that they overdid water power and transmission construction. They have turned from the mammoth station and the transmission line to multiple stations at load centers with transmission as diversity and emergency tie lines. Many systems find themselves burdened with a hydro and transmission investment that is breaking their backs. They are very sorry they made the investments —many were splendid financing projects and few were sound engineering projects. In many localities business is being lost and competition is increasing because fuel-burning stations at loads can produce power at less expense than it can be supplied from these large hydro transmission systems. Small fuel-burning stations have proved their case.'' One sentence above is an admission of the claims of some opponents of the utilities that construction has been at times less a question of cost studies than of investing money on which a good return is more or less assured.

As to facts, the present attainable efficiency of hydro generation is about 95 per cent, of steam generation 30 per cent with theoretical possibilities, but no immediate prospects, of increase to 90 per cent. Hydro costs are around $150 per kw.-compared with modern steam plant costs of about $70 per kw.—in one projected plant estimated costs are $55 per kw. exclusive of ground. Thus hydro generation must count on decreasing capital investment or on supplying more load with given capacity to meet the competition of increasing thermal efficiency of steam plants. The latter, however, face a probable advance in cost of fuel which will increase operating costs, already much greater than those of hydro plants.

Out of the many claims and counterclaims it seems that: (1) hydro plants may still be competitive with steam plants; (2) it is not clear whether or not large capital investment in hydro plants is justified in view of the rapid progress in increasing steam plant efficiency and the possibility of the use of entirely new means of generation of electrical energy—wind generation for example (THE AMERICAN YEAR BOOK 1931). Incidentally the experimental wind rotor plant at Burlington, N. J., has operated satisfactorily for a year.

The question of load is an important one. The domestic rates announced for the Tennessee Valley project, 3, 2, 1, 0.4 cents for different blocks, are promotional rates intended to induce maximum use. They may be compared with 5.5 cents the average cost to the domestic user in the United States. In parts of this country, particularly the East, skepticism is evident at the time of this writing, a skepticism which may possibly result from lack of acquaintance with the rates of the Ontario Hydro-Electric Power Commission and of certain large municipal plants in the West. For example, a financial commentator in *The New York Times* declares that informed persons do not consider the rates possible, whereas a news article in the same issue points out that a private utility in the state of Washington objects to the Federal Government's proposed developments in its territory on the basis that its average domestic rate is now 2.3 cents per kw-hr. This very low private-utility rate is undoubtedly due to the still lower municipal plant rates in large cities near the utility's territory.

In Tacoma the average rate is 1.73 cents per kw-hr. and the average use 1,550 kw-hrs. per year, compared with about 600 kw-hrs. per year for the United States. In Winnipeg the average use is 4,000 kw-hr. per year. The basic question as far as the domestic user is concerned is, shall rates be high and use low or vice versa? Each plan is apparently feasible economically. There is reason to believe that 3,000 kw-hr. per year is not an unreasonable average to expect of the domestic user, provided rates average less than 2 cents per kw-hr.

The use of a regenerative cycle may help to increase the value of hydro plants. It is used by few plants in North America and by many in Europe. It consists of pumping water into storage ponds at off-peak times and using it at times of maximum demand. By this method a given hydro plant can account for more of a system load than otherwise. In foreign installations separate motors and pumps are usually used for pumping; in the United States there has been some discussion of using the station generators as motors and turbines as pumps, avoiding increased investment but reducing efficiency.

Tennessee Valley.—The Tennessee Valley Authority was created by Congress to develop the resources of what has been a somewhat backward section of the country. Immense hydro development is under consideration and has been begun in part. Ultimate plans may call for 150 hydro plants on the Tennessee River and its tributaries to produce 3,000,000 kw. of firm power at about 4.3 mills per kw-hr. North Carolina, Alabama and Georgia, parts of which come within the province of the T. V. A., are already among the ten leading states in installed hydro capacity. There is little present need for increased supply of energy in the district, but plans to attract industries increase domestic use and extend farm electrification indicate that social development and financial sufficiency go hand in hand. Many municipalities will purchase energy at wholesale from the Authority. The announcement of a 350-mile transmission range evidently contemplates use of higher voltages than the present 220,000-volt American limit or the use of direct current. President Roosevelt has said: "If the project is successful . . . I think the development will be the forerunner of similar projects in other parts of the country such as in the watersheds of the Ohio, Missouri and Arkansas rivers and in the Columbia River in the Northwest."

Columbia River.—The statement in THE AMERICAN YEAR BOOK for 1932 that there appeared little likelihood of the development of the hydro resources of the Columbia River requires revision. The active pushing of some hydro projects as part of the public works program undertaken by the Federal Government has resulted in work being started at two important points, Grand Coulee and Bonneville. The former will ultimately be one of the largest hydro plants in the country.

Boulder Dam.—Work on the 1,800,000-hp. Boulder Dam projects has progressed according to schedule. Two of what will be the largest vertical-shaft waterwheel generators in existence (82,500 kv-a.) have been ordered.

St. Lawrence.—The construction by New York State of the hydro plant in the St. Lawrence, provided in the Great Lakes-St. Lawrence waterway treaty, will apparently be undertaken as soon as the treaty is ratified. Estimated cost of production is about 3 mills per kw-hr., compared with average costs of 4.4 mills for water and 10.6 mills for steam generation by other utilities in the state. As in the Tennessee Valley project, promotional rates are contemplated, 3 cents per kw-hr. being the highest domestic rate yet mentioned. The Power Authority estimates that energy may be delivered to New York City for about 5 mills per kw-hr. Inter-connection of private New York City and upstate plants was completed during the year indicating that the power Authority's plan to send energy to New York City is not as infeasible as some have claimed. About one quarter of the country's installed capacity is tied in to this interconnected group. Competition from the Province of Quebec is indicated by the repeal of a law banning electric energy. Quebec is reported to have 300,000 hp. available over its needs.

Other Hydro Projects.—It is a curious fact that at a time when steam plant efficiency is greater and cost of production less than ever before, there is almost no activity in the field, whereas hydro plants are being built in many sections of the country. A hydro boom is certainly under way. In addition to the projects listed above, there are developments begun or contemplated in Nebraska, Missouri, California, Maine, etc. and on the Rio Grande River (joint Mexican-United States project).

Foreign.—Large hydro developments are reported in France, Spain, Sweden, Egypt and Russia. One Russian station of particular interest is north of the Arctic Circle, where ice conditions are bad most of the year. Canada, with installed hydro capacity second only to the United States, has no new hydro work in progress. A study has indicated that more than 1,000,000 hp. can be conomically developed along the St. Maurice River, a tributary of the St. Lawrence in Quebec.

TRANSMISSION

The impulse testing of insulators has been standardized somewhat, and the general question of power system insulation coordination further studied in expectation of placing it on a definite and well defined basis. Lightning disturbances of transmission systems remain an important topic. One wood pole line of low, horizontal construction with two ground wires connected to ground at each structure has gone one and a half years without a flashover. The use of counterpoises at tower bases apparently is effective in reducing lightning troubles on high voltage transmission systems. It has been established that, for steel towers, "when the product of the tower current and tower footing resistance is high, flashover may be expected," and vice versa.

Corona studies have shown that corona loss decreases with aging of the conductor, and that the losses are slightly less for aluminum than for copper.

Great Britain's national transmission grid was completed during the year, and the grid of Scotland was likewise put into use.

Several new and important cable tests have been announced. It is reported that a cable for use at 380,000 volts has been developed in Soviet Russia. A 66-kv. gas-filled cable has been successfully tested in England; the gas is substituted for some of the usual insulating materials and test results show many apparent advantages.

An attempt is being made to develop a cable without external lead sheath for medium and low voltage distribution, so that the cable may be buried directly in the ground. A new secondary network cable which, in case of a fault, will burn clear without producing any smoke, inflammable, explosive or toxic gases, has been developed. The quality of rubber insulation has been greatly advanced during the year.

INSULATION

Insulation research was extensive and intensive as usual. Under the leadership of the Committee on Electrical Insulation of the National Research Council, frequent meetings are held and publications sponsored with the result that insulation study is one of the best organized fields of engineering research. It is impossible to summarize progress here; readers may refer to the reviews by J. B. Whitehead in *Electrical Engineering.*

DISTRIBUTION

Cost is the focal point of distribution problems. At a meeting of the Institute of Public Engineering the question of distribution costs was explored more extensively than it has been before in this country. Averages are highly deceptive in this connection and will not be discussed here; the important point is that distribution cost analysis has been brought into the open to a greater extent than previously. However, it seems that the real study has just begun; there is as yet no agreement on more than the elements. To quote the *Electrical World,* "Segregated figures on the investment in electric light and power systems, even for the broadest breakdown into a few principal elements, are notoriously lacking." The Federal Power Commission is reported to be preparing to make a study of distribution costs. An interesting comparison with distribution costs in

Great Britain is possible as a result of a report on such costs there. It is stated that 57.7 per cent of the invested capital and 51.1 per cent of revenue are devoted to distribution.

FARM ELECTRIFICATION

Little can be said about farm electrification in the United States. From the social point of view the tardiness with which farm electrification has progressed is a problem the solution of which is not in sight unless some governmentally supported organization such as the Tennessee Valley Authority can be expected to set an example which others will have to follow. About 700,000 farms, 13.5 per cent of the total number, have electric service; of this, roughly, one-third comes from individual plants and two-thirds from utilities. Various studies of the cost of farm lines continue to appear, but the radical reduction in cost which seems to be needed to extend electric service to farmers has apparently not been found. Germany, which in 1925 had 56 per cent of its homes electrified, had 76 per cent in 1930 whereas the corresponding figures for the United States are 56 and 70 per cent. Electric soil heating has been investigated extensively and is coming into use on truck farms and in greenhouses and nurseries. Faster growing crops and faster and better germination of seeds are obtained.

ELECTRICAL MACHINERY

In general the machinery field offered little that was very new. Efforts were chiefly directed toward improving details of design and manufacture. The impulse testing of transformers has been advanced by agreement upon a tentative test code. An experimental study has shown the desirability of coordination of the winding and bushing insulation of transformers. The need for low-frequency currents has led to the development of a self-exciting commutator generator which produces currents with a frequency of 2.5 cycles per second. About 200,000 kw. of 33-36 kv. generators have been installed abroad, but the maximum voltage for large commercial generators in this country remains 22 kv. There has been discussion in England of generators with voltage rating of 66 kv., although technically this would appear to be an extreme jump at the present time.

An interesting development may be forecast by an experimental arc-in-air rectifier. Previous attempts to use a gap have failed because of burning of the electrodes, difficulty in bringing about regular and periodic extinction, low efficiency, etc. The first has been overcome by keeping the arc in motion by use of a magnetic field, the second by use of an air blast and design of the apparatus. Another new development is a device which limits, almost to the point of complete suppression, a-c. arcs in starting and switching apparatus.

Oil circuit breakers in which the contacts are held in position by compressed air and breakers in which the arc is extinguished by being moved by an air blast are being built abroad. Machinery in recent years has been made to operate more quietly. The study of noise creation by machinery has been carried to a point where further noise elimination is dependent on the development of new materials or radically new ideas not now recognized. Sound-isolating bases and foundations for machinery have been developed. There are electric steam boilers of more than 1,000,000 kw. capacity in use in Canada. Availability of off-peak energy at very low rates has encouraged installation. An important study of transient torques in synchronous machines has been made; the problem is of importance in the design of large a.-c. machines.

MACHINERY REPLACEMENT

It has been estimated that up to half the machinery in the country is obsolete. The chief reason for not replacing it is that of finance; if estimates are at all reasonable it would seem that machinery has not been depreciated quickly enough. Electrical manufacturers are primarily creators of producers' goods and consequently are vitally interested; engineering development has proceeded while replacement has lagged. Some codes of industries under the National Recovery Act limit replacements and expansion in such a way as seriously to decrease the market for new machinery. However, under competitive conditions it is difficult to see how such restraints can be generally maintained when business conditions improve appreciably. Rehabilitation of manufacturing plants to take advantage of the economies now available through improved machinery is being actively pushed. It is interesting to note that there is a distinct tendency for machine tools to be electrically operated in all respects. Motors which can be made an integral part of a large machine are being developed.

INSTRUMENTS AND MEASUREMENTS

New Race Timer.—A timer which photographs the finish of a race at one-hundredth of a second intervals and at the same time photographs an accurately controlled clock is to be used in the coming Olympiad (Berlin, 1936). It has been tested out extensively in this country.

Inspection and Test Equipment.—A new surge crest-ammeter is being widely used in lightning investigations. New thermo-couples for operation at the high temperature met in electric furnaces have been developed in Germany. The sensitive photoelectric recorder announced last year has been improved. There have been many new developments in inspection and test equipment used in manufacturing. The usual quota of bridges for special purposes has been reported, and a new and interesting standard of low power factor has been developed.

Sound Measurement.—There has been considerable progress in the field of sound measurement, so that tentative standards are expected to be set up soon. At 1000 cycles the threshold of hearing of an average person is at an energy level of about 10-to-the-minus-sixteenth watts per square centimeter. This level is of about the order of the limit to hearing set by the thermal agitation of air. It has been proposed that this be taken as a standard from which to measure gains.

Reactive Volt Amperes.—Definitions of reactive volt amperes, reactive power and power factor for non-sinusoidal currents and voltages have been extensively discussed in the A.I.E.E. in an effort to get an agreement.

Meter Adjustment. — The New York Public Service Commission has proposed that no "fast" tolerance be permitted for meters, so that utilities will be forced to set meters slow. However, metering has improved in accuracy in recent years to such an extent that the potential loss to utilities does not seem great. From an engineering point of view, meter errors have equal chance of being plus or minus, hence tolerances should be allowed on both sides of accuracy, but the proposed rule seems essentially fair as far as newly installed or recently checked meters are concerned provided the initial cost of making all meters read on the slow side is not too great.

Springs.—An investigation of instrument springs has uncovered many interesting characteristics of these important mechanisms.

Voltage Measurement.—Measurement of high voltage loads on the low voltage side of power transformers was discussed without much agreement as to the economies available.

RELAYS

As usual there was considerable discussion of relays and their uses in protecting apparatus and lines. Initial tests of relay systems under operating conditions or the use of automatic oscillographs were advocated. The reduction of rates for leased lines by communication companies has encouraged a return to pilot wire service which is being extensively discussed after a partial lapse of some years. A new "sequence" relay permits (at least in part) the elimination of useless operation of protectors on low voltage distribution networks, and allows selective tripping of protector units. A system of relaying, in which the directors of fault currents at the ends of a transmission line control the relays and in which both ends of a line are opened for a fault on the line, has been developed. It consists essentially of directional relay systems at the ends of the line, connected by some communication system. Study of the use of carrier currents in cables will probably lead to an extension of the use of communication cables in control systems.

SUPERVISORY CONTROL SYSTEM

Substations along the Panama Canal have been changed from manual to supervisory control. Not only are dispatchers' orders more accurately and promptly obeyed, but decreased labor charges will pay for the installation in three years.

An interesting new supervisory system is at Indian Garden Springs, Arizona, where water formerly brought in by train is now pumped from a point in a canyon 3,000 feet below the town. The pumping station is difficult to reach, and consequently is controlled from above.

A direct selection supervisory control system has been developed in which direct selection of the apparatus to be operated is made. Copper-oxide rectifier valves are used to help sort pulses. The new system eliminates the time taken in older systems to pass from one position to another until the proper one is reached. Extensive application of automatic control to pipe line pumping is taking place.

ELECTRON TUBES

The use of electron tubes as industrial control devices continues to expand and new uses are being found regularly. One new combination is that of an electronic tube and a capacitor discharge circuit providing a time delay relay which it is claimed has "all the desirable features of mechanical relays now on the market, but none of the less desirable features." Other applications include voltage regulators, motor starters, speed control devices, etc.

A network of mercury vapor tubes and transformers has been constructed to act as a synchronous capacitor. The advantage is that it has no moving parts, will not hunt and will not fall out of synchronism.

The experimental installation of a mercury-vapor (not arc) rectifier set in Boston has been in continuous commercial service, converting a.c. into d.c. for distribution. The reverse problem of converting d.c. polyphase a.c. has been reported on. The possibilities of high voltage d.c. transmission with the aid of electron tubes are brought nearer by the solving of this problem. It seems that the rise of a need of new transmission lines is likely to lead to the commercial development of d.c. transmission, which offers many apparent economies.

A new method of starting arcs in mercury-arc rectifiers and gas-filled tubes has been developed. A pointed tungsten rod protruding slightly into the mercury pool ionizes the mercury quickly; the arc can be made as often as 60 times a second, and the action is more certain than with grid control. Large currents can be controlled as easily as small ones.

An interesting photoelectric cell application is in a device which translates a line on a chart to motor control. Possible automatic ship and plane control may result.

Two important developments in electron tubes used for radio purposes were the demonstration of "filamentless" tubes, not commercially available as yet, and the manufacture of metal tubes. In the former, the electron source is a flow discharge while in the latter, the metal exterior shell is both cover and plate.

Special tubes for operation at very high frequencies are being developed. Progress is the development of what is called an "iconoscope" for television sets has been reported. The iconoscope is a mosaic of a great number of minute photoelectric cells which act as cathode ray oscillographs as well.

New tubes for radio purposes, which appear in multitudes each year, are to some extent being made smaller in size to enable automobile radios to be made smaller, and the shapes of the tubes are veering away from that of the lamp bulb to more utilitarian designs.

A high voltage x-ray tube with walls of laminated paper is a laboratory development which may imply an important improvement in x-ray tubes in general. Another important x-ray development is a tube which operates from a 110-volt supply; this tube is very small and may find extensive use in industry.

RADIO

Small sets have become extremely popular. They represent in many cases a decrease in quality which places them roughly on a par with 1925 sets, with the loss of all the development which has occurred since then. Engineering is more than ever on a basis of price rather than quality. This is in the face of the fact that the increased leisure which faces many persons even when business conditions improve indicates an increased use of radio and television.

The North American Radio Conference met at Mexico City but adjourned without agreeing on important questions of international allocation of broadcast frequencies. Any decision was practically certain to decrease the channels available to the United States. A 500-kw. station is being built in Mexico, and another in Cincinnati.

In this country there is some talk of a general re-allocation of frequencies and channels, which might seriously change the present commercial broadcasting situation. One result of the demand by other countries for more channels and of the possible internal re-allocation may be the elimination of clear channels which are of importance to rural recipients. The U.S.S.R. has one 500-kw. and five 100-kw. stations and is planning a 1000-kw. station.

The development of musical instruments entirely electrical in action is a field in which increasing interest is being shown. An experimental recital of the Philadelphia Orchestra was ''broadcast'' from the orchestra to the audience in another auditorium. The orchestra leader controlled the intensity of sound electrically as well as by the usual method, allowing a much wider range in intensity than heretofore available. Bell System engineers went to considerable pains to make the transmission as perfect as possible, and sound was broadcast from many sources, reproducing to a great extent the effect of an orchestra spread over a stage.

TELEPHONY

Subscribers' Equipment.—Two improvements in subscribers' equipment were announced by the Bell System. For small businesses and large residences an intercommunicating system which requires no exchange board and which allows any telephone on the system to be used for outside or inside calls has been made available. For somewhat larger business houses where heretofore only a magneto switchboard could be used, a new ''common battery'' switchboard has been developed which offers the advantages of common battery service without sacrificing economy. Large switchboards have had common battery service for many years. The development of a line lamp of very high resistance which can be operated directly in series with the subscribers' lines was to a great extent responsible for the new switchboard.

Overseas Telephone Service.—During the year, radiotelephone service was inaugurated between the United States and Panama, Costa Rica, Philippine Islands, Guatemala, Jerusalem, Haifa, Jaffa, Palestine, certain cities in India, and Nicaragua. Bell-connected subscribers in the United States can now reach about 92 per cent of the world's telephones. Some of the connections indicated above were made by linking the regular transatlantic circuit with others at London.

Outside Plant Studies.—A laboratory branch of the Bell Telephone Laboratories has been set up at Chester, N. J., to study such questions as the preservative treatment of clothes and wooden ducts, methods of underground circuit construction, quality of cable-sheathing alloys, minimum permissible spacing of wires on cross-arms, wear of cables due to swinging in wind, accumulation of sleet on wires, etc. The large capital investment in outside plant makes these studies, many of which have previously been carried on less intensely and under less favorable conditions, of considerable importance.

Carrier circuits in cables have been studied. The great use of carrier circuits on open wire lines, and the consequent increase in capacity of these, naturally suggests the possible use of carrier in cable circuits. However, the very much greater attenuation of cable circuits at high frequencies is a barrier. Present developmental work indicates that carrier can be used in the shorter cable circuits. One striking incident in connection with this work is that one circuit actually set up and tested had a total attenuation (without amplifiers) of 12,000 db. which represents on an energy basis a 10-to-the-1200 power ratio. This figure is greater than the ratio of the size of the universe to that of the smallest known particle of matter.

Inductive coördination problems of great importance have been studied in connection with the Philadelphia-New York electrification of the Pennsylvania Railroad. The railroad is paralleled by extensive installations of communication plant. New field testing methods have been developed and much experimental research devoted to the problems.

The performance of telephone circuits is being rated in the Bell System by a new method dependent primarily on the average number of repetitions required on a given circuit. An attempt is thus made to allow for the many factors such as room noise, telephone reaction of speakers, etc., which purely electrical tests neglect. An instrument for automatically and quickly recording the electrical transmission efficiency of a circuit over the entire range of telephone frequencies has been developed.

TRANSPORTATION

Railroads.—Developments of interest to electrical engineers in the field of railroad transportation were few during the year. Most of the papers presented before the A.I.E.E. reviewed and analyzed existing installations, discussion centering about communication, control and signal systems, operating experience, simplification of electric locomotive control and problems arising from the air conditioning of passenger trains. One new development is a method of communicating between front and rear ends of trains which does not involve radio communication. The problem is important in the case of long freight trains and has been under investigation for some years. The possible introduction of stream-lined, light-weight, high-speed trains implies interesting problems concerning the reduction of weight of electrical machinery and control. In the urban-suburban railway field these problems have already been tackled and to a great extent solved. The Pennsylvania railroad resumed work on its Wilmington-Washington electrification.

Subways.—The Brooklyn-Manhattan Transfer Company has ordered a multi-section all-aluminum train of five cars which will weigh 140,000 pounds. High-speed, spring-supported electric motors will be used, with new control equipment which will automatically govern acceleration.

Aviation.—New electrical developments for aviation have to do mostly with automatic control and steering devices. One device for steering by radio automatically corrects for wind drift.

Elevators.—The elevators in one of the buildings of Rockefeller Center (N. Y. City) include some of the fastest yet installed. The speed is 1,400 feet per minute. In addition to all the devices for automatically stopping level with the floor, etc., this elevator system has photoelectric control to prevent doors striking passengers.

ELECTROCHEMISTRY AND ELECTROMETALLURGY

It is freely predicted that within 10 years the electrical energy used in electrochemical processes will be 30 billion kw-hrs. a year, more than one-third the total present output. Indications of greatly increased use of aluminum, new methods of extracting and depositing metals in one process, more extensive use of electrodeposition of non-metals, new electroplating processes, etc., all point to the increasing importance of electrochemical industries.

In view of the fact that there is a separate article "Electrochemistry" in Division XXI, this will not be discussed further here other than to point out that the A.I.E.E. Committee on Electrochemistry and Electrometallurgy is emphasizing the fact that the electrochemical and electrometallurgical industries are some "of the largest and fastest-growing users of electrical energy" and should logically receive far more attention on the part of electrical engineers and electrical manufacturers than is now given them.

Beryllium has been made commercially available. It has a conductivity somewhat less than copper, but is lighter than aluminum and has mechanical properties approximating those of steel.

ILLUMINATION

Lighting was a prominent feature of the Century of Progress Fair in Chicago, and it is the expectation of many illuminating engineers that the Fair's influence will be permanent and will appear in future demand for decorative lighting.

The first three installations in this country of sodium vapor lamps for highway lighting have been made. The higher efficiency of the sodium lamps, combined with the monochromatic nature of the light produced, which makes some details stand out more prominently, seems to indicate that there is a considerable potential field of application for such lamps.

A decrease in street lighting appeared to be imminent, thanks to the economy hysteria in many municipalities, but it has not materialized because the number of accidents and crimes has increased wherever such economy has been tried. Studies show that intimate correlation exists between decrease in street lighting and increases in the accident and crime rates, and that correlation has provided effective arguments for the retention of street lights on a pre-depression basis. Indeed, the studies indicate that greater investment in street and highway lighting would be for the social good. Such lighting has not even approximated a point of diminishing returns in the United States.

A great improvement in metallic reflectors is indicated by the experimental development of polished aluminum with a reflection factor about 95 per cent of that of polished silver plate. The aluminum does not tarnish easily and is harder than silver.

"Out of present researches upon light and vision is arising a new science of seeing. It embraces phases of physiologic optics, physiology, pathology and psychology as they relate to seeing. It offers a means for eliminating much of the empirical element now present in lighting practice." (W. C. Brown in November *Transactions of I.E.S.*)

A CENTURY OF PROGRESS EXPOSITION

Electrical features of the Century of Progress Exposition in Chicago were outstanding in some respects, such as the extensive and impressive use of decorative lighting and gaseous discharge tube lighting. Exhibits of experiments and models of electrical fundamentals and developments were an important part of the fair.

MISCELLANEOUS

Welding.—The use of welding in manufacturing and fabricating processes is increasing, and discussion of electrical aspects of welding continues among electrical engineers, without, however, any important developments during the year. It has been shown that x-ray investigation of welds is not an infallible method of detecting flaws.

Air conditioning is being pushed by utilities and manufacturers.

The National Electric Light Association was dissolved and replaced by the Edison Electric Institute.

Steel Mill Electrification.—A steel mill described as "revolutionary" because of investment costs of $20 per ton compared with $100 per ton heretofore is to be completely electrified. A 10,000 kw. furnace will be used.

Electrostatic Generator.—An electrostatic generator in which a 10,000,000 volt difference of potential can be developed between two large terminals has been built at the Massachusetts

Institute of Technology. Electric charges are carried on endless belts to the interior of two large and well insulated spheres where, following the electrostatic law, they pass to the outer surfaces of the spheres and remain there until the medium between the two spheres breaks down.

AUTOMOTIVE ENGINEERING

By Austin M. Wolf

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GENERAL DEVELOPMENTS

Individual wheel suspension at the front end of passenger cars, stepping up the performance characteristics of the smaller cars to an unusual degree, the increasing use of horizontal engines and their remote controls in the bus field and the "camel back" type of construction for trucks, are the outstanding developments in the automotive field.

ENGINES

Compression ratios have been slightly increased due to the greater use of aluminum cylinder heads. Combustion chamber design has been carefully investigated and, in spite of higher compression ratios, permits smooth operation on standard fuels. A series of horizontal six-cylinder engines have been introduced, following last year's inception of a twelve-cylinder opposed engine. These new engines are self-contained except for the provision of a fan drive shaft to extend to the forward radiator location.

A number of diesel engines have been developed for commercial use, being all of the pre-combustion chamber type. American engine manufacturers have now reached the production stage for this type of engine. A semi-diesel has also been introduced to meet the demand for a solid injection engine that would operate on a wide range of fuels and which could be started by hand with the same ease as gasoline engines. A moderate compression ratio is incorporated and spark plugs are used for ignition. One of the diesel engines introduced is provided with a small two cylinder gasoline engine which acts as a starter.

VALVES

The use of the hydraulic type of valve clearance compensator is growing. Copper-cooled exhaust valves are found on heavy duty engines where better cooling is necessary. There is a trend toward a tongue and groove spring retainer lock for valve stems because of the necessity of a snug fit of all parts at high speeds. For better valve cooling there is a tendency towards a slightly wider seat.

Exhaust valve inserts have made greater inroads, one of the virtues being the ability to retain the seal in spite of a warped block top surface. Consideration is being given to the cylinder block and head relationship to prevent distortion of valve seats and cylinder bores due to the pulling down of the head. Alloy cast iron cam shafts are more extensively used.

PISTONS AND RINGS

There have been further advances with the silicon alloy aluminum piston, which is usually cam ground and with the skirt having a slight taper. An oxide coating is being placed on it in several instances after it has been completely machined. The hardness eliminates scuffing and reduces wear both on the skirt and in the ring grooves.

A new compression ring has been brought out in which a small groove in the outer lower corner of the ring extends completely around except on each side of the joint where it is stopped off. Oil is thus held in the groove, providing a better seal. Oil control rings have been given considerable study, and a feature in one of the new products is an angular scraping surface on each side of the groove in which the contact area with a cylinder wall is reduced as wear occurs and thus compensates for loss of tension. While inner rings have been heretofore restricted to the service field, they are now being used in some of the new engines.

CRANKSHAFT

The alloy cast iron crankshaft has emerged from the experimental state. It is practically of the same dimensions as the previous forged shaft but the crankpins are cored out for lightness. It is probable that the cast iron shaft will permit the use of unusual cylinder arrangements since crankpin location can be spaced as desired without the difficulties of forging practice. The leaded bronze, steel-backed, thin-wall, replaceable bearing is being introduced on passenger car engines and is standard with several diesel engine manufacturers. In the former instance it is used for main bearings and in the latter for connecting rod bearings as well. Its load capacity is much higher than the babbitt type.

LUBRICATION

Several manufacturers are now using an oil filter in which the entire flow of oil passes through instead of the customary by-pass method. There is a trend towards pumps of larger capacity and larger diameter oil lines. A replaceable filter unit has been introduced utilizing molten lime rock in a fibrous state. Permanent filters incorporate a cleaning arrangement, one of which consists of a knife which can be rotated to remove the accumulated film from the surface of the metal filter element. Several engines are provided with a ball check valve in the return hole of the rear main bearing cap which prevents loss of oil on steep grades. The oil temperature regulator is being used more extensively, particularly for heavy duty service.

FUEL AND EXHAUST SYSTEMS

A self-feeding carburetor eliminating fuel pump and float chamber has appeared. An electric type of fuel pump is now used on several cars. A new air cleaner incorporates the use of a cellulose fibre filtering mat. Noises in the intake manifold have been absorbed in one instance by means of a porous sound absorbing material, provided with a lining of perforated metal through which the gases can pass, resulting in a combination manifold and silencer. There are further instances of muffler assemblies being mounted in rubber. One manufacturer provides a flexible coupling between the muffler and the power plant to prevent transmission of noise and vibration. Tail pipes are sometimes tuned for minimum exhaust noise.

CLUTCH

Centrifugal clutches have been introduced, provided with a mechanical or vacuum conversion mechanism whereby the clutch can be changed from the automatic to the conventional type. Some investigators have found difficulty in overcoming a back-lash noise resulting from sudden take-up of play in the drive, more than occurs with foot operation, being noticeable at very slow gear speeds.

Needle bearings have been introduced in the release lever fulcrums. To obtain low friction and to obviate the need of lubrication, one manufacturer provides a fulcrum pin which has a rolling motion on a flat surface instead of rotating in a bushing. At the outer end of the lever, direct contact between it and the lug on the pressure plate is eliminated by the interposition of a thin plate acting as a strut. A new metallic facing has been developed for the driving plate, running without oil and replacing the present asbestos facing which enables starting the average car in high gear on the level or slight up-grade. A slightly larger clutch is required due to lower coefficient of friction.

TRANSMISSIONS

There is considerable experimental activity on transmissions. One manufacturer is providing a self-shifting transmission consisting of a two-speed and reverse sliding gear unit, under manual control from the dash, in series with a two-speed centrifugally controlled unit. The reduction is obtained by internal gears, and a multiple disc clutch under centrifugal action enacts direct drive. Continuous torque of the automatic unit and a lower engaging speed of rotation for reduction than when engaging high speed characterize this unit.

In spite of the great accuracy with which gears are fabricated the problem of noise is being carefully investigated and portends new developments in mounting and design of the transmission case. For heavy duty work transmissions with helical gear teeth are now available. Being of the constant mesh type, the engaging clutches require a small movement of the control lever enabling shifting to be obtained quickly and without loss of vehicle momentum.

UNIVERSAL JOINTS

The needle bearing type of universal joint is very popular due to its ability to retain sufficient lubrication for considerable mileage and sometimes the life of the vehicle. Angularities up to 45° are possible with little impairment of efficiency and fill the need of a durable joint in the inter-axle drive of a four-wheel bogie unit. Rubber universal joints have appeared in revised form and are desirable because they need no lubrication.

REAR AXLES AND BRAKES

The hypoid gear rear axle is used to a larger extent. There is a trend in the small and medium cars toward the elimination of the independent differential carrier. The differential bearing supports are an integral part of the center housing casting, and the increased rigidity prevents spreading of the supports under load. Hydraulic brakes are used more widely.

Brake lining manufacturers are attempting to produce linings which will outlast anything before manufactured. There is a tendency, especially in the replacement field, to go back to woven linings but entirely different from the old types. New oil bonding compounds have been developed which not only thoroughly impregnate the product but retain a uniform characteristic for the lining throughout the entire possible heat range. There is every evidence that greater mileages of brake service will be possible without replacement and with only minor adjustments.

For heavy duty work requiring air brakes a three-cylinder compressor has been developed, utilizing a counterbalanced crankshaft, and aluminum crankcase, cylinder block and head. High-content nickel cast iron liners, pistons and valve inserts are used.

FRONT AXLE AND SUSPENSION

The superior comfort obtained by individual wheel suspension is due particularly to the low rate of the springs used as well as the absorption of an obstacle by one wheel without any disturbing influence on the other wheel. Most of the new designs incorporate a parallel link construction for each wheel, the suspension being taken care of by coil springs. New design problems have been introduced for the suspension as well as the car in its entirety in dispensing with the conventional leaf spring and axle. Frames have been made more rigid to take care of the new stresses imposed by this type of suspension. Tire-tread wear has occurred due to the lean-to occurring when rounding corners, since the wheels retain their relative position with the frame. Special tire-tread designs have been evolved to cope with this situation.

One of the manufacturers who is offering independent wheel suspension as optional utilizes the regular semi-elliptic springs and shock absorbers that he uses on the conventional design. The axle ends are unchanged and extend slightly toward the center of the car from the spring seat at which point the axle is forked. Two parallel rods, one above the other, connect the forked ends.

Individual suspension has been attempted only experimentally with the rear wheels in view of the problems presented by power transmission. In conventional suspensions, the threaded spring bolt and C-shackle have made advances. A rear stabilizer is used on some cars consisting of a cross bar with a lever at each end attached to the axle, thereby causing unison of action at each side to prevent side-sway.

TIRES AND WHEELS

Individual wheel suspension is further reflected in tire practice by the use of full non-skid tires on the rear and rib tires on the front. This provides maximum traction at the rear and smooth, quiet tires on the front which are responsive to steering control.

More accurate balancing of front wheel assemblies, including hub, brake drum, wheel, shoe and tube, is being enacted to prevent front end tramp at high speed. Low pressure tires with inflation presures around 25 lbs. per square inch are used in increasing number. The 16-inch tire predominates. The trend is definitely toward lower pressure and wider rims to give greater sidewise stability.

The metal inner tube valve is now being replaced by a rubber type. The rubber valve does not tear out or ruin a tube in case of a flat tire. The application of the tire is easier and the rim is sealed against water and dirt.

CONTROL

The coincidental starter control is being extended and in one instance is connected with the clutch pedal so that its depression will cause starting. As soon as the engine starts the starter diaphragm is automatically withdrawn by the intake manifold vacuum permitting the clutch pedal to function in a normal manner.

The demand for less effort in steering by light car manufactures has resulted in the development of a worm and roller steering gear in which the roller is mounted on needle bearings, replacing the previous worm and sector type.

Special equipment to grind a uniform width of cam groove to eliminate high spots which are liable to result from warpage in heat treating, permitting closer adjustment and uniform action, has been developed. A number of cars are provided with steering wheels colored to match the molding trim of the body interior.

In heavy duty work, proper steering becomes a problem when the front wheels are loaded in excess of 8,000 lbs. A compressed air steering control has been devised consisting of a double acting cylinder controlled by suitable valves. Due to the trend toward center and rear locations of the power plant and in order to avoid rods and shafting, an air operated gear shift is offered. A control box close to the driver has a series of valves operated by a small control lever in an H slot, maneuvered in the usual manner. On the transmission cover plate is a positioning cylinder for shifting rod selection, a cylinder to do the actual shifting and pilot cylinder and control valves.

EQUIPMENT

There is more extensive use of the single panel design embracing a large speedometer face surrounding the other instruments. In several instances the front parking lights are built and stream-lined into the front fender and the tail light is similarly treated in the rear fender. Experimental work is being carried on with smaller headlights which are becoming more necessary with the advances of streamlining. One manufacturer provides a horizontal position of the two filaments of the head lamp bulb. The dimmer light is deflected to the right instead of downward, when the toe-button switch is operated. A toggle switch on the dash controls the vertical position of the bulb by means of a magnetic ratchet mechanism. There are three positions the lowest being for city driving. The other two positions are provided to take care of the deflection of the lamp axis due to the load in the rear seat which might otherwise cause the beam to rise above horizontal. A relay is provided in one case to operate the horns, preventing corrosion at the horn button. Greater care is being given to radio installation. In some cases lead-in wires from the roof antennae are enclosed in sheathing, the latter being grounded.

A new development lies in the direct acting shock absorber, mounted between the frame and axle. Larger metering orifices due to the great amount of oil displaced and in view of their extremely short depth, eliminate the necessity of thermostatic control. The oil is under lesser pressure minimizing leakage possibilities. Low pressures permit easier control and greater uniformity of action.

A compact steam heater consisting of a dash mounted heating core and fan has been introduced and is fed by a boiler unit inserted in the exhaust line, consisting of a coil of heavy copper tubing.

SHEET METAL

Front fenders are carried further forward and down. Some are provided with gutters under the edge of the front fenders to carry away the water and prevent its being blown back over the body. Recessed plates in the rear fender catch stones that might be cast up by the tires on gravel roads. Greater streamline effect is imparted to the fenders, one maker extending the rear fender backward in a tapering, rounded form. An embossed panel on one rear fender is given a reverse curvature near the running board to add to the streamline conception. The same maker supplies, if desired, a disc which can be attached to the rear fender with three bolts thus closing in the wheel to give a speedier effect. Ribboned speed lines are embossed in both fender skirts. A large radius is given to the fender skirts at their forward inturned edge of the wheel opening to eliminate the flat panel effect otherwise obtained. The ribboned lines are also embossed on the top surface of the hood which with horizontal doors accentuate length and provide a horizontal sweep. There are more cars utilizing the hood to overlap the cowl and extending back to the windshield pillar.

BODIES

Further development of streamlining is in evidence. Rear panels have been given a decided rear slope and where trunks are furnished they are recessed into this panel. One body has inwardly sloping side panels above the beltline giving the effect of lowness and narrowness. Additional leg room, rigidity and the prevention of drumming is obtained by a double cowl construction which bulges forward in spherical form at each side of the engine.

Adequate ventilating methods are provided by the use of an adjustable wing forming part of the front window unit or separately attached to the body in combination with rear windows that swing outwardly as desired on a vertical pivot. A new noise and heat insulation suitable for use on the dash, body panels and the roof is made from Kapok fibres into sheet form.

Seats designed from an orthopedic viewpoint are in evidence. Softer springs are used at the top than further down. A rubberized hair for seat cushions has been introduced. Wide pleat upholstering is replacing the former plain type.

Unification of body and frame with the utilization of the upper structure to reinforce the whole has beeen accomplished in one design which is distinctive in the forward location of the powerplant, permitting location of the rear seat ahead of the axle and resulting in greater riding comfort.

TRUCK, BUS AND RAIL CAR

In the "camel-back" truck, the cab is placed at the front of the vehicle and over the engine to economize on overall vehicle length. The weight distribution on the conventional type of truck has been charged to bring one third of the gross load on the front axle to meet the trend of axle load legislation besides better utilization of tire capacities. A bus has been built on the tractor, semi-trailer principle in which every convenience for sleeping, eating and lounging has been provided.

Rail cars and trains based on automotive principles have had a great impetus. They utilize aluminum alloys high tensile strength alloy steels, gasoline or diesel engines, streamlining and pneumatic tires in some instances.

XIX. ENGINEERING AND CONSTRUCTION

NAVAL ARCHITECTURE AND MARINE ENGINEERING

By H. H. Brown

Editor, *Marine Engineering and Shipping Age*

SHIPBUILDING TREND

Midyear Slump in Shipyards. — With the completion during the first half of 1933 of the merchant shipbuilding program resulting from the passage of the Merchant Marine Act of 1928, work in the American shipyards dwindled almost to the vanishing point on July 1, except for a certain amount of naval shipbuilding. As a result of the lack of orders for new vessels, employment in the principal seaboard shipyards declined from about 16,000 on Jan. 1, 1933, to about 10,400 on July 1, when there were under construction in the private shipyards only six naval vessels, aggregating 37,900 displacement tons, and a few small vessels of miscellaneous types.

Revival in Naval Construction.— During the last half of 1933, however, the shipbuilding outlook was completely changed by the placing of orders for the largest peace-time program of naval construction in the history of the nation, comprising 37 vessels of 138,000 tons displacement to cost approximately $238,000,000. Although the output of American shipyards in 1933 amounted to only 138,288 gross tons of merchant vessels and one naval vessel of 10,000 tons displacement, which was the smallest output since 1908, the year ended with 65,788 gross tons of merchant vessels and 236,575 displacement tons of naval vessels under construction, and with employment in the principal seaboard yards exceeding that at the first of the year and rapidly increasing. While the amount of merchant tonnage now under construction is relatively small, the lack of this class of work is more than made up for by the large volume of naval work in hand, so that the principal shipyards in the United States are assured of steady employment for the next two or three years. The outlook is further brightened by the strong support accorded th Navy bill pending in Congress whic will authorize the replacement of ob solescent vessels as well as the build ing of new ones to bring the Nav up to treaty strength.

Vessel Types. — Of the merchan vessels delivered in 1933, figured o a basis of gross tonnage, 54.7 pe cent were propelled by steam ma chinery; 2.8 per cent consisted o motorships and 42.5 per cent wer barges or other types of non-pro pelled craft. Of the merchant ves sels under construction at the end o the year 57.5 per cent were steam ships, 24.8 per cent were motorships and the remaining 17.7 per cen were barges and miscellaneous non propelled vessels. The recent trend in the United States, therefore, has been strongly towards the construc tion of steamships rather than mo torships, which is contrary to the trend abroad where 55 per cent of all types of merchant vessels now build ing are motorships. In the case of the naval vessels under construction the total horsepower of steam ma chinery to be built is 2,720,800 as against only 12,000 horsepower of Diesel engines.

Tanker Construction. — Although from the present outlook naval construction is destined to predominate in the shipbuilding industry in this country for the next two or three years, there is one class of merchant vessels that cannot be ignored, and that is the tanker. The tanker fleet comprises over a quarter of the American merchant marine and, taking fifteen years as a fair average for the useful life of a vessel of this type, over 50 per cent of the tanker fleet is already obsolete. Tankers built during the last ten or twelve years have deteriorated more rapidly than normally might be expected, because the materials used for tanker construction during this period have not been able to withstand the corrosive action of the distillates which are being carried in continually larger quantities. As a result of both deterioration and obsolescence the tanker tonnage has been depleted to a point where the building of modern economic tankers is a necessity. Most of the oil companies already have building programs tentatively outlined, and the building of both large seagoing tankers as well as small vessels for inland waterway service has begun. An extensive program of tanker building, therefore, is anticipated in the immediate future.

WEIGHT REDUCTION

Importance of Weight Saving. — With the major part of the shipbuilding activities devoted to warship construction, one of the most important problems facing naval architects today is the reduction of weight of war vessels in order to obtain the maximum fighting strength under the treaty limitations of displacement to which these vessels must conform. In order to provide these ships with additional speed, armament or armored protection every pound of weight in the hull structure or machinery that can be saved is of the utmost importance.

Naval Vessels. — Weight savings are being sought by the substitution of welding for riveting in the hull structure, machinery and fittings, by the substitution of high-tensile steel for mild steel in the strength members of the hull, and by the use of lighter materials than mild steel for the construction of divisional bulkheads and superstructures and of aluminum for ship furniture instead of wood. Machinery weights are also being reduced by the increase of steam pressures and temperatures and improvements in the economy of power plants so that greater power and speed can be obtained from a given machinery weight, or a given power can be obtained with less machinery weight. In all these directions substantial savings in weight are being made so that more powerful fighting ships are being produced in all classes of naval vessels than was possible a few years ago.

Merchant Vessels.—In the design of merchant vessels the question of weight saving is of no less importance, particularly in the case of high-speed passenger liners. While high-tensile steel has been used in the strength members of most of the large liners recently built abroad, with marked reductions in hull weights, its use has so far made little progress in this country. An analysis of designs for a high-speed 800-foot liner when the hull is built entirely of mild steel and when special high-strength materials are used shows that the use of mild steel instead of high-strength steel increases not only the first cost but also the operating costs of the vessel. These increases are due not so much to the structural changes in the hull as to the resultant changes in propelling machinery and fuel consumption. In other words, the use of high-strength steel makes possible a higher apparent income from the operation of the vessel. The lighter but equally strong hull permits the attainment of a given speed with less power, lighter machinery and a lower fuel consumption. The greater cost of special materials in the hull is more than offset by the possible reduction in machinery and operating costs.

PERFORMANCE OF SHIPS

Model Tests.—When a ship of any size or importance is designed, it is customary first to conduct model experiments to determine the necessary propulsive characteristics. When, as a result of such model tests, a particular combination of lines and propellers is selected as satisfactory, the vessel is built and trials of the ship are held to obtain the actual speeds and powers. The trial results of the full-size ship, however, generally differ from the model results, and it is necessary to determine, by a comparative analysis of the two sets of results, just how far the predictions of model tests can be safely followed in the design of a ship.

Speed and Fuel Trials. — Because the usual trials of vessels in the past have been conducted primarily to determine whether the ship has met certain contract requirements as to speed and fuel consumption, the data obtained have generally been too meager for a complete analysis of the performance of the vessel and consequently have been of little or no real value to the designer. In order to explore this baffling question, one of the most complete sets of full-scale trials of a vessel ever undertaken was recently conducted on a destroyer by Commander H. E. Saunders, U. S. N., and Lieutenant-Commander A. S. Pitre, U. S. N., the results of which were disclosed in a paper before The Society of Naval Architects and Marine Engineers last year.

Results. — While the trials furnished data from only one type of ship they showed the full-scale tests, when sufficiently extensive and carefully conducted, will furnish data very nearly as accurate as can be obtained with model tests under laboratory conditions, provided corrections for all tangible sources of error are applied to the observed data. In particular, the trials emphasized the necessity for measuring the thrust, something which heretofore has been neglected in this country, but which not only makes possible a more complete analysis of propeller performance but, more important, supplies the only means for analyzing hull performance and studying in a comprehensive way the variations in ship frictional resistance, the most elusive and uncertain element in the conversion of model test data to predicted full-scale performance.

FIRE PROTECTION

Two Schools of Thought.—Recent disastrous fires on large liners at sea, resulting in loss of life and huge financial losses, have focused attention upon the reduction of the fire hazard on board ship. Two schools of thought exist regarding this important matter. One, fostered by naval experience, favors a ship built completely of fireproof mat rials; the other, based on comme cial experience, advocates means fo controlling fires in their incipien stage by the use of fire-resisting materials and the subdivision of th interior of the ship into fire zone by fire-screen bulkheads. Bot schools, of course, advocate the us of the latest and most improve means of detecting and extinguishing fires.

Naval Ships.—On naval vessels th only flammable material used in construction is a limited amount o wood decking, consequently the vessel, as a structure, is almost on hundred per cent fireproof. Draperies and decorations are dispense with, the furniture is of metal, an aluminum foil has been substitute for cork for insulations. In this typ of vessel, however, the cost of attaining the desired end is a secondary matter, and the necessity of catering to the comfort and taste o the traveling public does not exist

Merchant Ships.—In the case o merchant vessels, so far as is known only one practically fireproof passenger ship was ever built in the Unite States. That was a small vessel built many years ago, which prove a failure financially. On the othe hand, real progress is steadily being made towards the lessening of th fire hazard by the reduction of flammable materials, the use of fire-resisting materials for joiner work, and the better zoning of the interior o the ship by suitable fire-screen bulkheads. Last year the National Fir Protection Association adopted as a tentative standard a set of regulations covering fire-resisting construction aboard ocean and coastwise vessels which are of a practical nature calculated to reduce the fire hazard on merchant ships. The largest ship now under construction, the 1,000 foot French liner *Normandie,* is subdivided into four main fire sections by fire-resisting bulkheads, and further subdivided by fire-resisting and fire-screen bulkheads into 130 fire zones, all of which are thoroughly equipped with the most improved fire-detecting and fire-extinguishing apparatus, and which are to be further protected by an elaborate fire patrol system.

Draft Control.—While it is conceded the fires cannot be absolutely prevented on a passenger ship, and that fire will spread due to the lapse of time between its detection and the functioning of extinguishing systems, it is recognized that fires at their inception are of low temperature and that draft is the most active agent in the rapid establishment of fire. Air baffle doors and bulkheads to subdivide long passageways and to segregate fires when they occur in otherwise unrestricted accommodation spaces are absolutely essential. Enclosure bulkheads should be intact to the underside of the steel decks, and fore and aft bulkieads should have sheet metal, asbes- os millboard or other suitable fire- esisting material fitted above the ulkhead runner between deck beams o prevent spread of fire to adjacent paces and to reduce draft. Means hould also be provided for shutting own the mechanical ventilation fans erving an enclosure where fire oc- urs and fusible link dampers should e provided where main vent ducts ass through fire-resisting bulkheads n order to shut off all draft.

INTERIOR ARCHITECTURE

With the adoption of various forms f fire-resisting construction there is eing developed a trend toward more mple forms of architectural design ship interiors that lend themselves the elimination of wood and sim- lification of construction. The flair r decorative magnificence that ourished without restraint a few ears ago is dying out. In its place ere is appearing a saner trend ward a more pleasing treatment public rooms in which simple dig- ty is achieved with the luxury con- ned to furnishings of good taste. the end it is the traveler whose ste is to be satisfied and it is com- g to be recognized that the aver- e traveler is not likely to be par- ularly happy or contented if rced to live in the atmosphere of a useum or bizarre show-room day after day. Not only are the simpler and more tasteful interiors more restful, but they are less expensive.

CARGO HANDLING

Port Time Element — As every merchant vessel is built for the purpose of earning a profit, the major problem of the naval architect in designing a ship is to produce the most efficient competitive transportation unit possible for the particular service in which the vessel is to engage. The ship's profit-producing capacity is determined primarily by the tons of cargo carried per year, the capital charges and the cost of handling cargo. The tons of cargo carried per year are influenced by the time the vessel is in port and the time it is transporting its cargoes at sea. Reduction of time in port increases the number of voyages and, therefore, the number of tons carried, so that means of rapidly and economically discharging and loading cargoes at terminals are of the utmost importance for the profitable operation of the vessel.

Side Ports and Hoists.—Recent improvements in cargo handling which shorten port time have consisted mainly in the greater use of side ports and the speeding up of hoists. The greatest advantage of side ports is that they make it possible to reduce time in port by providing a greater number of cargo openings. While an ordinary cargo ship usually has only five hatches, a modern side-port ship may have five hatches and twenty-four side ports, making a total of twenty-nine cargo openings. Shipowners operating both side-port and hatch ships in the same trade have found that the cargo-handling costs for the sideport ship are 15 per cent less than for the hatch ship. For cargo stowed in the 'tween decks the gain for the side-port ship is 30 per cent. Another advantage of side ports is that handling cargo through side ports is safer for the longshoremen, which is reflected in the compensation rates.

Electrical Winches.—By the general adoption of electrically driven winches the time of cargo handling has been materially reduced, and hence the port time of the ship shortened. Modern winches will handle a 3,000-pound load at 340 feet per minute, a 1,500-pound load at 470 feet per minute and a light line at from 700 to 800 feet per minute. Full advantage of the high-speed hoists, however, depends upon the location and arrangement of the winches and the provisions of suitable booms.

MARINE MACHINERY

Propulsion Developments. — As most of the vessels built in the United States in 1933 were equipped with oil-fired watertube boilers and geared turbines, the principal developments in propelling machinery were made in this type of power plant. Fuel rates of 0.56 pound per shaft horsepower per hour have been obtained and with further increases in steam pressures and temperatures it is expected that fuel rates substantially lower than the present figures will be obtained.

Alternating - current Auxiliary Drive. — The most noteworthy development of the year in marin electrical machinery was the application on a broad scale to a larg merchant vessel of alternating-current motors for driving auxiliaries While this type of equipment ha previously been successfully used o Coast Guard cutters and is now coming into general use on naval vessel this is the first attempt to utiliz alternating current extensively fo auxiliary drive in the merchant service

Diesel Engine Improvements. — While Diesel engines played only minor part in new ship constructio in the United States in 1933, the predominated in vessels built abroad the average size of plant per shi increasing 23 per cent over that o the previous year. The most noteworthy innovations in marine Diese practice during the year were th development of welded steel fram construction, the application o high-speed geared units of large power and the development of large two cycle trunk-piston engines, all o which tend to reduce the weight space occupied and cost of Diese installations.

COMMERCIAL MARINE ENGINEERING

By A. H. Jansson

Editor, *Marine Review*

GENERAL

The momentum of new merchant shipbuilding in the United States due to the favorable provision of the merchant marine act of 1928 was so considerable that in spite of the depth and extent of business depression activity continued throughout 1932 almost unabated. It was clear, however, that the program was drawing to completion early in 1933. Of all the fine vessels initiated under this program, only five remained to be completed in 1933. These were the *Washington* for the United States Line, in April; the turbine electric passenger and freight vessel *Peten* for the United Fruit Co., in February; *Lurline,* third of the Matson liners, in January; *Santa Lucia,* and *Sant Elena,* for the Grace Line, in February and April respectively. These vessels have long since entered service and no finer ships, as regards nava architectural and marine engineering features, have been constructed anywhere.

NEW CONTRACT FOR CARGO SHIPS

During 1933 the outstanding, an the only major contract for merchan shipbuilding was the order placed b the A. H. Bull & Co., Inc., New York with the Newport News Shipbuilding & Dry Dock Co. for two 7,300 ton deadweight cargo ships. These vessel are of the most modern design fo cargo service and will have accommodations for twelve passengers each. The basic design was prepared by the shipyard with certain additional features suggested by the owner and naval architect. Principal characteristics are: length overall, 408 feet; length between perpendiculars, 390 feet; beam, 54 feet; depth molded to upper deck at side, 30 feet, 6 inches; draft in loaded condition, 24 feet, 11 inches. The deadweight capacity will be about 7,300 tons; the gross tons will be about 5,200 and the net tons about 3,200. The shaft horsepower applied to a single propeller will be 3,150. Service speed is to be 13 knots. Propelling machinery will be of the most modern design consisting of single reduction geared turbines developing 3,150 shaft horsepower in a single screw. Watertube boilers burning fuel oil will supply steam at working pressure of 300 pounds per square inch. Adequate superheat will be provided. In these two cargo vessels a distinct advance has been made over any vessels of this type now in operation. Particular attention has been given to the arrangement of the holds and to the cargo handling machinery in order to get maximum economy of operation. It may be said that these two cargo vessels represent a careful attempt based on wide experience to produce the most efficient vessels possible, and it is expected that their design will be carefully considered by other American shipowners and operators when considering replacements and additions to existing tonnage.

NEW PASSENGER AND AUTOMOBILE FERRY BOAT

Another interesting merchant vessel under construction during 1933, scheduled for completion about the middle of December, is the passenger and automobile transport steamer *Delmarva.* This vessel was constructed at the shipyard of The Pusey & Jones Corp., Wilmington, Del., for the Virginia Ferry Corporation, a subsidiary of the Pennsylvania railroad, for service in transporting passengers and automobiles between Cape Charles, Va., and Little Creek, Va. The new ferry is of steel construction throughout with fireproof bulkheads in cabin spaces and crew's quarters, and fully complies with all the latest requirements of the United States steamboat inspection service. The principal particulars of the *Delmarva* are: length overall, 260 feet; beam over guards, 59 feet; depth molded amidships, 19 feet, 1 inch; and draft, loaded with 250 tons, 10 feet. The main deck for the accommodation of automobiles is plated with checkered steel plates to prevent slipping and skidding. The engine and boiler room casings and vent trunks are located off center line, port and starboard, allowing for three lanes for automobiles. The promenade deck aft is arranged to accommodate 100 colored passengers. The same deck forward of this space is arranged to accommodate 300 white passengers, and includes a lunch room, dining alcoves, purser's room and dance floor. Leather upholstered divans and chairs are fitted for the comfort of passengers. On this deck is located a special room to house the ventilation and heating fans which supply fresh cool air or heated air to all cabins and passenger spaces.

The propulsion machinery is of special interest. Two Skinner unaflow type steam engines, each with four cylinders of 19 inches diameter by 20 inch stroke, are direct connected through Kingsbury thrusts to the line and propeller shaft. Each engine is capable of developing continuously 1,400 shaft horsepower at 200 revolutions per minute when operated on 275 pounds per square inch steam pressure, with 200 degrees Fahr. superheat at the throttle and exhausting into a 26-inch vacuum. The guaranteed steam consumption at full load conditions is not to exceed 11 pounds per shaft horsepower per hour. Each engine is force-lubricated by means of an independent pump for circulating oil through cooler and bearings. The cylinders are lubricated by a positive force feed pump, injecting pure mineral oil into the steam line ahead of the throttle valve and at each inlet valve.

For receiving the exhaust steam there is one two-pass marine surface condenser of high efficiency design, having 1,625 square feet of tube surface made up of 788 admiralty metal tubes 10 feet 6 inches long by ¾-inch outside diameter, of No. 18 Birmingham wire gauge. The tube sheets are of Muntz metal, and the tubes are rolled into these sheets at both ends. The shell is of welded steel construction arranged with a welded steel expension element to compensate for tube expansion. Steam is supplied by two Babcock and Wilcox watertube marine boilers having for each boiler a total heating surface of 3,826 square feet, and a total superheating surface of 371 square feet. The boilers are arranged to burn fuel oil and are designed for a working steam pressure of 285 pounds per square inch, at the superheater outlet, and for superheat of 200 degrees Fahr. The boilers are built to withstand safely a working steam pressure of 322 pounds per square inch. Electric current for auxiliary power and lighting is furnished by two geared turbine generating sets of 50 kilowatts capacity, direct current, two wire, 125-volt. The turbines operate on steam at 275 pounds per square inch pressure at gage, 200 degrees superheat and 10 pounds back pressure.

In many respects, because of its unique propelling power, the *Delmarva* represents something new in marine steam engineering though engines of the same type have been in use in two rather large elaborate Ohio river towboats, *Ohio* and *Tennessee,* since 1930. As far as known, this is the first time that an engine of this type has been applied to a comparatively large vessel.

S. S. WASHINGTON

Of chief interest during the year was the completion and entry into service of the *Washington* in the run between New York, Cobh, Plymouth, Havre and Hamburg, a sistership of the *Manhattan.* She sailed on her maiden voyage from New York on May 10 and carried in excess of 740 passengers. Though a sistership of the *Manhattan* and modified only in certain general features, it will be worthwhile to recapitulate here her principal characteristics. The *Washington,* like the *Manhattan,* was built by the New York Shipbuilding Co. at a cos of about $10,000,000, for the trans atlantic service of the United State lines. The keel was laid Jan. 20, 1931 She was launched Aug. 20, 1932, an completed May 2, 1933. Her lengt overall is 705 feet; length on wate line, 685 feet; length between perpendiculars, 666 feet; beam molded, 8 feet; depth molded to C deck, 4 feet; depth to promenade deck, 7 feet; load draft, designed, 30 feet deadweight on load draft, 12,000 tons displacement at a draft of 30 feet 8¾ inches, 33,500 tons; gross tonnage 24,289; net tons, 13,900. Her norma speed in service is 20 knots. The actual average speed in service ha been somewhat over this figure and for her sistership, the *Manhattan,* the average for 13 round voyages completed in the period of one year wa something like a quarter of a kno better than this.

The *Washington* is a twin screw vessel and is fitted with two sets o single reduction geared turbines, each transmitting 15,000 shaft horsepower at 125 revolutions per minute. Passenger capacity in three classes is 1,083 divided as follows: cabin class, 576; tourist class, 366; third class, 141 Total number of the crew is 478, making a total in passengers and crew of 1,561. Like the *Manhattan,* the *Washington* carries the highest class of the American Bureau of Shipping.

The summarized results of the eight-hour full power trial of the *Washington* are as follows: shaft horsepower of main turbines, 33,534; shaft horsepower of main turbines and auxiliary generators, 34,610; revolutions per minute of propellers, 124.9; fuel consumption (corrected to 18,500 B.t.u oil) for all purposes per shaft horsepower per hour of main and auxiliary turbines was .595 pound. This figure for consumption on trials is considerably better than the guaranteed figure which was .65 pound, and it is also slightly under the consumption obtained on trial for the *Manhattan.*

Again referring to the propelling machinery of the *Washington,* it is interesting to note that steam is supplied by six Babcock and Wilcox express watertube marine boilers each of 10,500 square feet boiler heating surface, 2,507 square feet of superheating surface and 8,207 square feet of air heating surface. The boilers are built for a working pressure of 409 pounds per square inch.

SHIPYARD RECORD OF TYPES

What kind of ships are built in American shipyards? A partial answer to this question may be found in the interesting summary of the types of ships built by the Newport News Shipbuilding & Dry Dock Co. in the forty-three years of its existence. On Jan. 4, 1933, Homer L. Ferguson, president and general manager of the Newport News Shipbuilding & Dry Dock Co., in an address delivered before the sixth annual conference on the merchant marine at Washington, summarized the building of 355 vessels at this yard since the contract for hull No. 1, July, 1890, as follows:

Type of Vessel	*Number*
Seagoing passenger ships.....	51
Seagoing freight ships	50
Oil tankers	31
Destroyers	29
Battleships	13
Aircraft carrier	1
Cruisers	7
Gunboats	3
Monitor	1
Coast Guard cutters	7
Cable layer	1
Yachts	10
River and bay steamers.......	7
Ferryboats	5
Dredges	5
Tugs	13

Among other things in that address Mr. Ferguson pointed out the urgent need of a replacement program for cargo ships. He said in part: "A replacement program of cargo ships is needed now, and such a program would result in lessening the cost of the hips. Our investigations indicate hat the saving in duplicate ships will un up to above 12 per cent when the der calls for six or more. In the case two ships built at the same time, or early the same time, there is a saving at least 5 per cent. The need of a finite replacement program is quite as great on the part of the owner in the long run as it is for the builder. Not only do ships wear out in a comparatively short time, but they become obsolescent even before they wear out and the constantly changing trades demand larger and faster types. This has been the history of the business."

NAVAL PROGRAM

Since Mr. Ferguson delivered this address there has been a complete change in the status of work for all the leading shipbuilding establishments in the United States outside of those on the Great Lakes. Reference is made to the great naval building program, contracts for which were placed Aug. 3, 1933. Briefly summarized, this program calls for the building of 21 naval vessels including aircraft carriers, cruisers, submarines, and destroyers, in seven private shipyards at a total bid cost of $129,777,600. At the same time the building of 16 naval vessels including cruisers, destroyers, gun boats, and submarines was allocated to eight navy yards at a total estimated cost of $68,800,000. Following this large naval program the United States Coast Guard has let contracts for and called for bids on five cutters of the *Escanaba* type, nine patrol boats of the *Argo* and *Galatea* type, four harbor cutters and nine large cruising cutters, the total program calling for an expenditure of approximately $19,000,000. Bids have also recently been taken for two lighthouse tenders at a total cost of over $600,000.

Due to this great government program of new shipbuilding, the principal shipyards of the country are now in better conditions as far as work in hand is concerned than they have been at any time since shortly after the war. On the other hand there has been, as noted above, an almost complete cessation of merchant shipbuilding due almost entirely to the depressed condition of business. Recent indications, however, point to a revival of interest in new merchant tonnage. A recent inquiry, for instance, called for the building of three coastwise, river and canal tankers and another inquiry for a single vessel of this type.

It is clear that the replacement of over-age and obsolescent cargo vessels will become an urgent necessity in the near future, and activity along these lines may also be expected with reference to tankers. Brisk activity in various types of merchant shipbuilding may be expected as business begins to return to normal. A number of American steamship lines have already felt the effect of improved business conditions to such an extent that deficits have been changed into fairly substantial net profits. This applies particularly to coastwise and intercoastal lines.

CONTROL OF SHIPBOARD FIRES

The recent disastrous fires on shipboard including the spectacular fire on the French liner *L'Atlantique* which occurred in the British channel Feb. 4, 1933, has centered the attention of owners, naval architects, and shipbuilders on developing ways and means of preventing and controlling such disasters in the future. Many valuable suggestions for this purpose were made by George G. Sharp, New York naval architect, in a paper entitled "Fire Control on Passenger Vessels" read at the forty-first annual meeting of the Society of Naval Architects and Marine Engineers in New York Nov. 16. Control of fire on shipboard might be more confidently predicted, thinks Mr. Sharp, if means can be developed for giving effect to the following brief outline of provisions for detection and extinction, and for construction and draft.

For detection and extinction he proposes a reliable automatic alarm system with a detector in each cabin or other inclosure registering in a central control station or pilot house; a 24-hour watch in the central control station whether the vessel is at sea, in port, or laid up; an adequate patrol of public rooms, corridors and spaces not served by the automatic alarm; to have two powerful jets simultaneously directed at any part of the ship, also an additional jet on the decks next above and below, together with statutory fire extinguishers.

For construction and draft, Mr. Sharp proposes confining a fire within the cabin or other enclosure bulkheads by such materials and construction as to insure maintenance of their integrity for a sufficient period of time (say 20 minutes) after the alarm registers to allow fire fighters to reach the fire location and to get extinguishing apparatus into operation. Construction of public and other spaces (without automatic detection) so as to maintain their integrity after an outbreak of fire for the period between patrol rounds, elimination of all draft to reach cabin and other enclosures except such as might be created by open air ports, door or ventilation, and means for shutting down mechanical ventilation from the pilot house or central control stations immediately upon receipt of alarm, are other proposed measures.

MORE ECONOMICAL MACHINERY

Exhaust Geared Turbine.—American marine engineers have given considerable attention during the past year to the systems suggested abroad for improving the economy of existing vessels fitted with steam reciprocating main propelling machinery. An instance of this was the installation of an exhaust steam turbine in combination with the existing reciprocating steam engine on the S. S. *Point Ancha* of the Gulf Pacific Mail Line, Ltd. Originally this vessel had been designed for a maximum speed of 10½ to 10¾ knots. By subsequently fitting a streamlined rudder and an improved propeller this maximum speed was increased to approximately 11½ knots. By installing a De Laval exhaust geared turbine of the Bauer-Wach system, the speed was increased to an average of 13.8 knots on the first voyage in service without appreciably increasing the fuel consumption. The original speed can easily be maintained at a considerable saving in the original consumption. The exhaust turbine was designed to add 1,075 shaft horsepower to the 2,600 indicated horsepower developed by the triple expansion engine without increasing the steam consumption. The new turbine and the gear occupy the space formerly taken by the old thrust bearing while the new condenser occupies approximately the same space as the old condenser.

Lentz Reciprocating Engine.—Another approach to increased economy is by means of the Lentz standard marine, high temperature reciprocating engine with poppet valves. This engine originating in Germany and developed and applied extensively in Sweden, offers an improvement on the old reciprocating steam engine, by being lighter in weight, of smaller dimensions for equivalent power and of greater efficiency with comparatively low initial cost made possible by standardization. It is a double compound engine in which two units, arranged in juxtaposition, work on a shaft having four cranks. The high pressure cranks are set at right angles to each other and the respective low pressure cranks at 180 degrees with the adjacent high pressure cranks; thus the engine starts in any position without the aid of special starting gear. This engine is designed to operate with steam pressures of approximately 200 pounds per square inch with steam temperatures up to 615 degrees Fahr. and a vacuum of 92 per cent. Under the designed steam pressure and temperatures, the Lentz engine has a recorded fuel consumption in service of 1.01 pounds to 1.1 pounds per indicated horsepower per hour with coal and .77 pound to .84 pound with oil, the consumption varying slightly with the power developed. The steam consumption of the condensing auxiliaries is included in these figures. By operating the Lentz engine in conjunction with a low pressure exhaust steam turbine it is possible to make a still further substantial decrease in fuel consumption for equivalent powers.

IMPROVING EXISTING PLANTS

Marked economy has been effected in the fuel consumption of ordinary reciprocating engines by "Lentzification," that is, the substitution of a Lentz high pressure cylinder with poppet valve, the latter operating by means of the existing link motion, for the existing high pressure cylinder. In such conversion it is possible to use the same quantity of superheat as that recommended for the standard Lentz engine, which may be from 60 to 75 degrees Fahr. Up to the spring of 1933 more than 300 foreign-owned vessels have been fitted with Lentz engines and fully 100 have had their overall efficiency improved by modification of the steam plant in accordance with the program designated as "Lentzification." Up to the time this is written, though several American operators have indicated considerable interest in the possibilities of this method of improving the operation of their steam reciprocating engined vessels, no installation has as yet been made on this side. Plans have been made for at least one such installation in a large ocean-going vessel but due to business conditions the work is temporarily in abeyance.

STATUS OF THE DIESEL ENGINE

Because of the limited new shipbuilding of merchant vessels during 1933 there have been comparatively few installations of diesel engines over 1,000 horsepower in size. There is one record of diesel operation in service which deserves mention. In the fall of 1932 the Puget Sound Navigation Co., Seattle, Wash., installed a 2,130 brake horsepower, eight-cylinder, two-cycle, single-acting diesel engine, built by the Busch Sulzer Diesel Engine Co., in the vessel *Chippewa* remodeled from a steel passenger steamer into a passenger and automobile carrier. It replaced a 1,400 shaft horsepower, triple expansion steam engine. Up to the present time this diesel engine is the largest in operation on Puget Sound, and the owner states that the vessel has been an unqualified success. The operating cost has been cut in two while the speed has been materially increased.

With the experience of the *Chippewa* to go on, this company has now purchased the ferry boat *Peralta*, damaged by fire, and plans are under way to rebuild her for the run between Seattle and Bremerton, Wash., a distance of 16 miles. The *Peralta* is to be fitted with a 3,000 horsepower diesel engine direct connected to a single shaft and propeller. When completed she will accommodate 115 automobiles and 3,000 day passengers. The selection of a diesel engine in this instance is based on the satisfactory performance and low operating cost of the *Chippewa.*

ADVANCE IN MARINE ENGINEERING

In summarizing the present status in the United States of marine engineering for merchant vessels we can hardly do better than refer the reader to an article by Frank V. Smith, an engineer in the marine department of the General Electric, which appeared in *Marine Review* during 1933. If we are to achieve maximum results in maritime affairs, we must appreciate the value not only of practical skill in building and operating ships, but also of the fundamental and underlying efforts of those who by research, investigation, and analysis make possible more efficient design and operation of vessels and other appliances serving as the tools of shipping. In the papers presented at the annual meeting of the Society of Naval Architects and Marine Engineers last November at New York there is ample evidence that much valuable work along this line is under way in the United States.

MATERIALS OF ENGINEERING AND CONSTRUCTION

By C. Laurence Warwick

Secretary-Treasurer, American Society for Testing Materials

and

Paul J. Smith

Technical Assistant, American Society for Testing Materials

METALS

Cast Iron.—As the third in the series of compilations of engineering data on the properties of cast metals (*see* The American Year Book, 1931, p. 668; 1932, p. 669), the American Foundrymen's Association and the American Society for Testing Materials have published a comprehensive review of the physical and mechanical properties of cast iron (Am. Soc. Testing Mats., *Proceedings*, vol. 33, II. p. 115, 1933). Valuable data on manufacture of gray irons, alloy cast irons and white and chilled irons are included, also the effect of design of castings on cost of manufacture and greater utility in service, metallurgy, classification and specifications, heat treatment, welding and foundry factors of importance in the production of iron castings.

The usefulness and significance of the several forms of impact tests for cast iron are brought out in an extensive report (Am. Soc. Testing Mats., *Proceedings*, vol. 33, I, p. 87, 1933). It is difficult even on the basis of a study as complete as this one to draw intelligent conclusions as to the relation betwen the general physical and metallographic characteristics of cast irons and their resistance to impact. It would seem that the tensile impact and repeated-blow tests are not reliable indices of impact strength. Notched specimens and very small specimens, such as are used for steel, are also unreliable, but the pendulum type machines using the larger specimens give results that closely follow the resilience as measured in the usual transverse test. The stress-strain curve of the latter test, if the test is accurately carried out, is capable of giving most of the information required about shock resistance of cast iron. The results of the study may eventually lead to impact requirements in standard specifications.

Effect of Temperature on Metals.—The securing of reliable data concerning the action and properties of metals under conditions of high temperatures and pressure (*see* The American Year Book, 1931, p. 666; 1932, p. 668) continues to be extremely important and has demanded the development of accurate and precise test methods. The Joint Research Committee of the A.S.M.E. and A.S.T.M. on Effect of Temperature on the Properties of Metals has now formulated such methods, covering short-time and long-time (creep) tension tests of metals within the range from room temperature to 2,000° F. (Am. Soc. Testing Mats., *Proceedings*, vol. 33, I, p. 209, 1933). These methods stipulate the necessary refinements for the equipment and test procedure and set requirements for precision that should insure less difficulty in the future from discordant test data.

Studies of creep and structural stability of nickel-chromium-iron alloys have been continued by W. A. Tucker and S. F. Sinclair (Bureau of Standards, *Research Paper No. 572*, vol. 10, June, 1933). In the investigation at 1100° F. of the nickel-chromium-iron system (*see* THE AMERICAN YEAR BOOK, 1932, p. 668), it was found that the alloys containing little or no iron, 50 to 80 per cent nickel and 50 to 20 per cent chromium exhibited the greatest resistance to creep. At 1600° F. the strongest alloys, in the sense of load-carrying capacity, are those containing approximately equal parts of nickel and chromium, and not more than 30 to 40 per cent iron. The combination of prolonged heating and stressing caused structural changes in all but one alloy.

A rapid means for classifying alloys as to their metallurgical behavior and probable utility for use in mechanical applications at high temperatures, using a modification of the Rohn test for investigating the creep of metals, is described by C. R. Austin and J. R. Gier (Am. Soc. Testing Mats., *Proceedings*, vol. 33, II, p. 293, 1933).

Metals used in aircraft construction are required to withstand extremely low temperatures at high altitudes. A study of the mechanical properties of a variety of chrome, nickel and molybdenum alloy steels and aluminum and magnesium alloys at —40° C., the temperature attained at 30,000 ft. elevation, is reported by J. B. Johnson and Ture Oberg (*Metals and Alloys*, March, 1933, p. 25). The results show an improvement in the tensile strength at this low temperature, the increase for various iron alloys being quite marked. Loss in ductility as measured by elongation and reduction of area is not appreciable. The fatigue endurance limit is also higher at the low temperature for all the alloys studied. The notched bar impact test is the most sensitive indicator of the effect of sub-normal temperature, and while most steels show a rapid decrease in impact value between +20° and —20° C., the authors note several exceptions, including the chrome-molybdenum and low-carbon chrome-nickel steels examined by them. It is concluded that present design practice is safe in using for these low temperatures allowable design stresses determined by testing at room temperature.

Fatigue of Metals. — Precise understanding of the mechanism of and causes for fatigue failure is becoming increasingly essential in order that new practical engineering developments will not be unduly restricted. That the causes of failure of metals are intimately associated with the crystalline structure is shown by Dr. H. J. Gough (The Edgar Marburg Lecture, Am. Soc. Testing Mats., *Proceedings*, vol. 33, II, p. 3, 1933) in presenting the results of a ten-year experimental study of the characteristics of deformation and fracture under mechanical forces of metallic single crystals. By observing single crystals under repeated stress it is found that slip planes appear and produce little ridges on the surface. By polishing the ridges and rerunning, the progress of the slip is observed. The specimens become work-hardened by the minute slip in a fashion quite analogous to cold working under severe deformation. Crystals have a definite capacity for cold working and when this capacity is locally exceeded fatigue damage begins.

Going from single crystals to aggregates of two or more crystals, it is found that the crystal boundaries tend to inhibit slip. The more boundaries there are, the harder the metal and the less readily it slips. It is concluded that the essential characteristics of fatigue failure of polycrystalline specimens are substantially the same as those of single crystals. Fatigue failure must, therefore, be considered as a consequence of slip; if this conclusion is accepted, the subsequent stages of fatigue become comprehensible in the light of observed phenomena.

The fatigue properties of the harder steels are somewhat in doubt. H. J. French in an appraisal of the processes of martenization and age hardening in terms of the resistance of steels to fatigue (The Edward DeMille Campbell Memorial Lecture, Am. Soc. Steel Treating, *Transactions,* October, 1933), shows that fatigue fracture may occur in a specimen that has run ten million cycles unbroken—a run sufficient to establish the endurance limit of softer steels—so that longer runs, for example, 30 to 60 million repetitions, are required to establish the endurance limit of a very hard steel. The lecturer suggests many useful lines of thought especially applicable to the problem of getting the optimum combination of hardness, yield and tensile strength, endurance limit and ability to withstand overstress in such important applications as springs, bearings, gears, shafting, battering tools, etc.

An accelerated or ''overnight'' test for endurance limit has been proposed by H. F. Moore and H. B. Wishart (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 334, 1933), based on the theory that below the endurance limit cycles of repeated stress increase the tensile strength by cold work, while above the endurance limit cracks develop that reduce the tensile strength. A period of 1,400,000 cycles, which can be reached overnight in rotating beam machines operating at 1,500 r.p.m., seems sufficient to develop such cracks for many of the commonly used metals. By determining the tensile strength of a number of specimens that have been subjected to alternating stresses covering a range of values on both sides of the supposed endurance limit, and suitably plotting the values, the endurance limit can be estimated with reasonable accuracy for a number of metals so far studied. The practical significance of the test lies in the possibility of placing fatigue testing more nearly on a commercial basis.

A fatigue test for galvanized wire under pulsating tensile stress that is held to be more indicative of service conditions for wire than is the rotating-beam test has been developed by S. M. Shelton and W. H. Swanger (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 348, 1933).

Corrosion Studies.—The industrial significance of the deterioration of metals by corrosive action, due to the necessity for periodically replacing materials and equipment amounting to millions of dollars annually, has long been recognized (*see* THE AMERICAN YEAR BOOK, 1931, p. 667; 1932, p. 666). Valuable progress reports by the American Society for Testing Materials on comprehensive research studies, which include long-time service tests in the atmosphere and laboratory accelerated tests attempting to simulate actual service conditions, have been reported (*Proceedings,* vol. 33, I, pp. 140, 176, 234, 1933). It has been possible to draw only tentative conclusions from detailed periodic inspections after a 206-week exposure period of the long-time atmospheric tests on hardware, structural shapes and tubular goods coated by commercial methods with aluminum, cadmium, hot-dipped lead, and zinc coatings applied by four processes. These indicate that there are no outstanding differences in the performance of any class of coating which are attributable to the nature of the base metal to which it is applied. The resistance to corrosion of a zinc coating depends substantially on the weight of coating and not on the process by which the coatings are applied. This society, in coöperation with the American Electroplaters Society, is also carrying out extended atmospheric exposure tests of the principal electro-deposited metallic coatings (*Review of the American Electroplaters Society,* 1933).

A valuable progress report has also been made on the corrosion resistance of twenty-four non-ferrous metals and alloys after an exposure of approximately one year at nine different locations representing the more important types of atmospheric conditions. The data show the changes in weight, tensile strength and elongation that the materials have undergone after one year's exposure. The specimens are also examined visually to determine as nearly as practicable the amount and character of the corrosion product film. Periodic examinations over the next ten years will be made. Corrosion studies of the same alloys immersed in solutions of sulfuric acid, hydrochloric acid, caustic soda and common salt are being made, as well as a study of resistance of various metals to galvanic and electrolytic corrosion.

Alloys of Iron Research.—A coöperative research project under this title has been under way for some four years under the sponsorship of Engineering Foundation and with the support of the iron and steel industry, several governmental departments and technical societies. The broad purpose is to make readily available the useful knowledge of alloy irons and steels now scattered throughout the literature of the world, to correct and eliminate errors in existing data and increase the precision of data no longer adequate to the refinement of present-day industrial processes, and to promote fundamental research in the metallurgy of iron and its combinations with other substances. Excellent progress has been made and much useful work accomplished. Two monographs have been published, one on "The Alloys of Iron and Molybdenum" by J. L. Gregg, the other on "The Alloys of Iron and Silicon" by E. S. Greiner, J. S. Marsh and Bradley Stoughton. They constitute critical surveys of the knowledge of these subjects and will unquestionably become the standards of reference in their respective fields.

Molybdenum in Tool Steel. — A valuable contribution to tool steel metallurgy has been made by J. V. Emmons (Am. Soc. Steel Treating, *Transactions,* March, 1933) in studies of the role of molybdenum in high speed steel as a replacement element for tungsten, a "strategic metal" in times of national stress. A new type of high speed steel has been developed carrying about one-fourth as much tungsten as molybdenum, the other alloying elements being those commonly found in high speed steels and in the usual proportions. The addition of such an auxiliary amount of tungsten has been found to improve the microstructure and the strength, to make the plasticity more uniform and particularly to increase greatly the cutting quality. Tungsten-free molybdenum steels have a cutting quality of their own about on a par with the 15 per cent tungsten 4 chromium and 1 vanadium type of high speed steel.

Bearing Metals.—Further studies by H. K. Herschman and J. L. Basil (Bureau of Standards, *Research Paper No. 551,* vol. 10, May, 1933) of bearing metals (*see* THE AMERICAN YEAR BOOK, 1932, p. 669) have resulted in development of a copper-lead alloy from which the tin and antimony, other "strategic metals," have been eliminated. The alloy contains more than the customary amount of lead, about 45 per cent, with the addition of 0.4 per cent sulfur and 1.5 per cent silicon-zirconium alloy, balance copper. Tests shows this alloy to be equal or superior in compressive strength and wear to commercially available leaded bronzes. The structure and general physical appearance of the new alloy indicates that this material can be readily handled commercially in the manufacture of bearings.

The present trend toward higher compression and higher and more sustained speed of automobile motors has necessitated the use of white metal bearing alloys that will withstand this more severe service. A cadmium-nickel alloy (3 per cent nickel, balance cadmium) that is superior in compression and hardness at service temperatures (up to 570° F.) and having a higher softening point and much higher creep resistance than the tin-base babbitts, is reported by C. E. Swartz and A. J. Phillips (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 416, 1933). This cadmium-nickel alloy, unlike other cadmium alloys, is readily capable of bonding itself to steel as well as to brass and bronze, the alloys usually used as backings for bearings. After severe road service tests cadmium-base bearings were in first class condition while the tin-base babbitt had failed due to temperature. This is another new development in which a domestic metal, cadmium, may replace tin.

Zirconium.—Another element "zirconium" has joined the ranks of commercial metals (*Metals and Alloys,* December, 1933, p. 199). It has remarkable chemical stability, being superior to aluminum and magnesium the rare earths and all other powdered metals. At first, used almost solely in photographic flashlight powder and pyrotechnics, recent applications have shown that it alloys readily with copper and nickel which may lead to new developments of nickel-silver and copper alloys. It is a good reducing agent and deoxidizer and when alloyed with silicon makes an excellent scavenger in steel making. Its application in zirconium carbide tools suggests that it may prove valuable in other fields due to its heat insulating quality.

Beryllium.—Beryllium, a comparatively new alloying element recently introduced to metallurgists, is attracting wide interest. In a review of its development and use (*Mining & Metallurgy,* May, 1933, p. 227), W. H. Bassett states that most of the research work at present has been with beryllium-copper alloys. The addition of beryllium to copper increases the tensile strength and fatigue limit and imparts greater abrasion resistance than that possessed by other copper alloys. The highly important thermal and electrical conductivities of copper are not greatly lowered by addition of beryllium. The outstanding property of the beryllium-copper alloys is the precipitation hardening (low temperature heat treatment) which may be attained. High tensile strengths, of the order of 150,000 lb. per sq. in., with corresponding increases in hardness result with heat treatment of the soft annealed alloy (about 2 per cent beryllium) at 300° C. and of cold-worked material at 275° C. The alloys can be produced in the form of sheet, strip, rod, wire and tubes; they can also be hardened by cold work to such an extent as to permit their use in hammers, cold chisels and knives. E. F. Cone (Am. Foundrymen's Association, *Transactions,* 1933) describes a 12.5 per cent beryllium alloy (balance, pure copper) that is used as a raw material in the manufacture of commercial castings.

NON-METALS

Cement.—The need for cements that will give permanent satisfaction under a variety of conditions and for adequate acceptance and service tests to predict such performance, is stressed by P. H. Bates (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 462, 1933), who questions the possibility of any one type of cement being able to meet adequately the various conditions prevailing in such widely divergent constructions as, for example, a dam, a road and a reinforced building. Since it seems impossible to develop more than one or two desirable properties to a major degree in any one cement, he proposed several separate cements for particular applications which should exhibit, respectively, the qualities of high-early strength, plasticity, low heat of hardening, low volume change, and resistance to moisture and aggressive solutions; also two cements similar to the present standard portland, one being lower in lime and higher in silica than the other.

The possibility of producing blended cements superior to normal portland cements for certain classes of work was revealed in studies by R. W. Carlson and G. E. Troxell of the advantages derived from adding a siliceous material (volcanic ash) to high-lime portland cements (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 484, 1933). The heat of hydration is reduced by blending with silica, but not by the full percentage of cement replacement. Volume changes are shown to be lower at early ages and higher at later ages than for plain cement. The tendency of the silica to increase the contraction at later ages appears to be least for the high-lime cement, for preliminary curing under mass-concrete conditions, and for silica calcined to incipient fusion.

Mass Concrete.—With the design and construction of Boulder Dam there have developed problems of greater variety and magnitude than those of any similar mass-concrete project ever built. To secure fundamental data required for the solution of these problems, many of which are without precedent, the U. S. Bureau of Reclamation has initiated extensive researches covering the selection of cement, volume change, permeability, strength, durability, elasticity and thermal properties of concrete, adiabatic curing of concrete, the effect of size of aggregate, and the testing of large concrete cylinders. The major results obtained in the cement studies (Am. Concrete Inst., *Journal*, vol. 4, June, 1933, p. 413; vol. 5, September-October, 1933, p. 9) show the influence of chemical composition, fineness of grinding and method of manufacture upon heat of hydration, strength, volume changes and durability of mortars and concrete. The generation of heat under given conditions of curing is greatly affected by the chemical composition of the cement, to a lesser degree by the fineness and by the water-cement ratio of the mix. Important developments on other phases of these cement and concrete researches are presented in a series of preliminary reports (Am. Soc. Testing Mats., *Proceedings*, vol. 33, II, pp. 538, 571, 1933; also Am. Concrete Inst., *Journal*, vol. 4, March-April, 1933, p. 305; June, 1933, pp. 365-396; vol. 5, September-October, 1933, pp. 9-48).

Vibrated Concrete. — Basic information on vibration methods and their effect on concrete has been obtained by the Portland Cement Association Research Laboratory and reported by T. C. Powers (Am. Concrete Inst., *Journal*, vol. 4, June, 1933, p. 373). The ability of the vibration method to handle concrete of lower water content than that required by hand-placing methods and having a minimum of sand, is one of its main accomplishments. Just as for hand-placed concrete, the quality of the cement paste is the chief factor in determining strength, in both compression and flexure. A comparison of compressive strength results on concretes of varying sand contents shows vibrated concrete to be unlike hand-placed concrete in that it has no tendency to drop in strength at extremely low percentages of sand. Freezing and thawing tests conducted on vibrated concrete cylinders have indicated no impairment in resistance to weathering, due to vibration.

A full scale study by the U. S. Bureau of Public Roads of vibrated concrete for pavements is reported by F. H. Jackson and W. F. Kellerman (Am. Soc. Testing Mats., *Proceedings*, vol. 33, II, p. 590, 1933), which demonstrates that vibratory equipment will place and finish drier concrete as well as concrete containing considerably more coarse aggregate than will methods now in common use. This report also gives information on a method of "delayed finishing" that removes excess water, increasing the density and strength of the concrete pavement.

Reinforced Concrete Columns. — The recent comprehensive studies of reinforced concrete columns (*see* THE AMERICAN YEAR BOOK, 1932, p. 671) have been interpreted by a final report (Am. Concrete Inst., *Journal*, vol. 4, 1933; February, p. 275; June, p. 433) presenting recommended design formulas for tied and spirally reinforced concrete columns. A minority report takes exception to certain formulas on the ground that they do not properly reflect the results of the tests. This investigation has provided new information regarding the use of unusually high strength concrete (up to 8,000 lbs. per sq. in.) and reinforcing steel (yield point up to 68,000 lbs. per sq. in. for vertical and 83,000 for spiral reinforcement) and has furnished valuable data regarding column behavior under long-time loading.

Brick and Reinforced Brick Masonry.—An extensive survey by J. W. McBurney and C. E. Lovewell of building brick produced throughout the country shows a range in compressive strength of 1,500 to 21,000 lbs. per sq. in. and in absorption (5-hr. boiling water test) of 2 to 34 per cent (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 636, 1933). Shale brick had a narrower range for all properties than clay brick. Freezing and thawing tests indicate that suitable weathering resistance is insured by brick showing 2,500 lbs. per sq. in. compressive strength and 18 per cent absorption, or 6,000 lbs. strength with an absorption of 12 per cent.

The introduction of reinforced brick masonry into the building construction field (*see* THE AMERICAN YEAR BOOK, 1931, p. 672) has made imperative the securing of reliable data concerning the structural behavior of reinforced slabs, beams, walls, and columns. Studies by M. O. Withey on 8 by 12-in. reinforced brick beams, 8-ft. span, using three widely different varieties of brick, and several variations in percentages of longitudinal steel and stirrup reinforcement, have shed some light on the flexural action of this type of masonry (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 651, 1933). It is shown that a high degree of flexural strength and sheer strength can be developed in reinforced brick beams provided attention is paid to mortar bond, coursing, amount and arrangement of reinforcement, and filling of joints. The formulas for reinforced concrete beams can with proper constants be used for reinforced brick beams. Resistance of such beams to sustained loads, to freezing and thawing and to fire needs to be studied.

The action of reinforced brick columns is revealed in tests of 12½ by 12½-in. columns, 10 ft. long, at ages of 7 and 28 days reported by Inge Lyse (Am. Ceramic Soc., *Journal,* vol. 16, November, 1933, p. 584). The column strength was found to be made up of the effective strength of the masonry plus the yield point strength of the longitudinal reinforcement. Lateral reinforcement had little if any direct effect upon the column strength, but generally determined the type of failure. The strength was directly affected by the strength of the brick and the type, plasticity and strength of the mortar. The results furnish a basis for the development of rational design formulas.

Wear Resistance of Stone. — A valuable investigation to determine the comparative resistance to wear of the natural stones commonly used in floor surfaces and other construction exposed to abrasive action is reported by D. W. Kessler (Bureau of Standards, *Research Paper No. 612,* November, 1933). A new wear test apparatus was used, consisting of a grinding disk 10 in. in diameter revolving in a horizontal plane at 45 r.p.m. with the specimen (2 by 2 in.) held thereon at a constant pressure. while fresh abrasive (No. 60 artificial corundum) is supplied as the grinding proceeds. The degree of correlation between the test data and wear in actual service was found to be satisfactory, so that the test will predict service wear with a fair degree of accuracy. Some of the stones commonly used in floor surfaces showed abrasive resistances of the following order, the figures used being inversely proportional to the loss by abrasion; marbles, from 7 to 42; limestones, 2 to 24; sandstones, 2 to 26; slates, 6 to 12; granites, 44 to 66; serpentines, 15 to 111; travertines, 5 to 17. On this scale the most resistant material (quartz) showed a value of 180. Materials used for general flooring purposes in this country showed values between 15 and 20.

Synthetic Plastics. — Plastic materials, formerly used almost exclusively in electrical insulation, are now, due to recent developments, finding almost universal application. The many forms in which it is possible to make synthetic plastic products, both as regards appearance and physical properties, make them suitable for an extremely wide range of mechanical applications, machinery parts and other devices subjected to severe service, as well as for ornaments, novelties and household objects formerly made from metal or wood (*Machinery,* October, 1933, p. 85; also *Chemical and Metallurgical Engr.,* December, 1932, p. 651). Plastics finding most general use at present may be divided into some nine classifications; molded phenolic compounds, cast phenolics, laminated phenolics, cellulose acetates, urea compounds, casein, cold-molded compounds, hard rubber and shellac. Each of these has characteristics different from the others and, while certain fields of applications overlap, there are definite uses for which each plastic material is especially suited.

TESTING

Torsion Impact Test.—The inadequacy of present methods of determining impact resistance on very hard materials, such as hardened tool steel, due to the variable stress concentration resulting from the character of the specimen and load application have prompted much research in this field. A machine and method in which a specimen is fractured torsionally under impact has been developed by G. V. Luerssen and O. V. Greene (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 315, 1933). This machine not only obviates former difficulties, thus providing a means for making comparisons of impact values, but also operates with an accuracy and ease commensurate with standardized methods used on softer materials. Data obtained on three types of hardened tool steel open a field of testing not hitherto explored in a quantitative way.

Particle Size Measurement.—The important role played by fineness of materials in various scientific and industrial applications was revealed in a round-table discussion before the American Society for Testing Materials devoted to methods of particle size measurement of pigments, dust, coal, cement and soils, including photomicrographic and projection methods, elutriation and sedimentation, air separation, and estimation of specific surface by adsorption. Due to the diversity of techniques used by various investigators, the need for standardization of methods of particle size analysis and presentation of data has become apparent. As a step in this direction the A.S.T.M. has standardized a method of analysis for the particle size distribution of sub-sieve size particulate substances (Am. Soc. Testing Mats., *Proceedings,* vol. 33, I, p. 989, 1933).

An apparatus, essentially a turbidimeter, and method for making rapid determinations of the specific surface and the particle size distribution of portland cement has been developed by the Cement Reference Laboratory and described by L. A. Wagner (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 553, 1933). A light of constant intensity is passed through a suspension of cement in kerosene and directed into a photo-electric cell which measures in micro-amperes the light that passes through. Changes in turbidity observed as the particles settle from the suspension are converted mathematically from micro-amperes to specific surface. The method is based on the principle that the shadow cast by the particles in suspension is proportional to the projected area of the particles and therefore to their surface area. Duplicate analyses of twenty portland cements show an agreement within 5 per cent.

Agglutinating Value of Coal.—A small-scale laboratory test giving valuable information regarding coking and caking properties of coal is reported by W. A. Selvig, B. B. Beattie and J. B. Clelland (Am. Soc. Testing Mats., *Proceedings,* vol. 33, II, p. 741, 1933). The property of agglutination is necessary for coals used for coke manufacture but often causes trouble in burning coals on grates due to obstruction of air through the fuel bed. The test consists in carbonizing at 950° C. a mixture of the fine coal and Ottawa sand, producing small buttons which are tested by crushing. The agglutinating value is expressed in terms of the crushing strength.

Presentation of Test Data.—An outstanding contribution to the progress in this field (see THE AMERICAN YEAR BOOK, 1932, p. 674) is the publication of a *Manual on Presentation of Test Data,* prepared by a committee of the American Society for Testing Materials. Quantitative data from an important part of the source material used in arriving at new knowledge and in selecting suitable standards of quality and methods of testing. Briefly, the manual outlines methods of determining, from a set of numbers containing the whole of the information under consideration, how much of the total information is contained in a few simple functions of the numbers, and discusses the importance of using efficient functions to express that part of the total information which is essential to the intended use of the data. Such functions, containing essential information for a majority of uses of data on properties of materials, are number of observations, average, standard deviation, skewness, and maximum and minimum observations if the data were not obtained under ''controlled'' conditions.

STANDARDIZATION

New Contributions.—The past year has been one of intense activity in the standardization of engineering materials. A number of valuable contributions have been made, resulting principally from new technical and industrial developments. The importance to industry of materials specifications and standard methods of tests was recognized in the new program of coöperative action launched under the National Industrial Recovery Act, in which provision was made for application of standards in many industrial fields through the codes of fair competition. The accomplishments during the year in the standardization of materials of engineering by the American Society for Testing Materials is concisely expressed by the following statistics: 35 new specifications and 16 methods of test for materials not previously covered; 57 newly adopted standards, and revisions in 45 specifications and 29 test methods, resulting from further improvements and new developments (*Proceedings*, vol. 33, I, p. 503, 1933).

Steel Products. — New standards for steel products were particularly outstanding. To satisfy the demand resulting from increasing temperatures and pressures in boiler and pressure vessel construction, two new specifications covering high-tensile strength carbon-steel plates up to 4 ins. thick, of tensile ranges 65,000 to 77,000 and 70,000 to 82,000 lbs. per sq. in., were promulgated. A further change in the new specifications for medium structural steel issued last year was made through the publication of two specifications, one for bridges and the other for buildings covering the 60,000 to 72,000 lbs. per sq. in. grade and the publication of separate specifications for mild steel plates (55,000 to 65,000 lbs. per sq. in.). A consolidated specification for carbon-steel castings for industrial, railroad and marine uses has eliminated certain confusion, due to varying requirements for the same grades of steel in existing specifications.

To meet the need for a reference standard for the classification of S.A.E. and allied structural steels according to grain size, a standard chart of 16 photomicrographs was prepared. This chart is the result of metallographic studies extending over a ten-year period.

Aluminum Specifications.—Due to changes in the aluminum industry during the year, making possible the fabrication of increased size ranges of sheets and plates and coupled with improvements in quality and the development of certain commercial manufacturing tolerances, new specifications for aluminum and duralumin sheet and plate, and for wrought shapes, bars and rods were issued. Requirements for magnesium ingot and stick used in the manufacture of products of this light alloy were also issued in a new specification. A new hard zinc die casting alloy having a high impact strength under severe and varied conditions of aging and excellent resistance to oxidation, an important contribution to the automotive field, was covered by standard specification.

Other Metal Specifications.—Other outstanding developments in the metals field included specifications for alloy-steel castings, steel pipe for high-temperature service, heat-treated elliptical springs, wrought-iron rivets, and zinc coatings on hardware and fastenings. Improved methods of chemical analysis for aluminum alloys and for metallic materials for electrical heating were also developed.

Concrete.—Specifications covering the materials, proportioning, testing and delivery of ready mixed concrete for general use (see THE AMERICAN YEAR BOOK, 1931, p. 670) were a contribution that will be valuable to both users and producers since the conditions of its production and marketing differ from those of concrete made on the job. A new specification covering detailed requirements for concrete for use in the construction of pavements is expected to have great influence in extending the knowledge and use of the best practice available. Since determinations of absorption of concrete aggregates have become of great importance in connection with arranging proportions for concrete mixtures and with measurements of the ingredients in the field, two methods, laboratory and field tests, were developed.

Insulation. — In view of the increasing use of insulating refractories in various types of industrial furnaces, test methods for determining the compressive strength, flexural strength and shrinkage of high-temperature heat insulating materials were established. Revised specifications for structural clay tile provide for the classification of such products according to the range in water absorption rather than as hard, medium and soft, and also contain revised tolerances on shell thickness and width of cell and new tables on size and weight.

Lacquer Solvents and Diluents.—The increasing use of lacquer solvents and diluents prompted the preparation of specifications for benzene, toluene, tricresyl phosphates, zylene and soluble nitro-cellulose base solutions. New specifications were also issued for spirits of turpentine and shellac varnish, and extensive improvements made in the methods of sampling and testing shellac.

Revised Knock Ratings.—Following the completion of road tests in determining the knock characteristics of gasoline (see THE AMERICAN YEAR BOOK, 1932, p. 672) a revised procedure which brings laboratory knock ratings in line with average knock values in cars was adopted. This revised method, known as the C.F.R. Motor method, is based on the procedure developed by the Coöperative Fuel Research Committee.

Textiles. — A comprehensive analytical key for the qualitative identification and quantitative analysis of mixtures of all important fibers of mineral, animal and vegetable origin was an important contribution to the textile field. Specifications for varnished tubing and cloth tape, the first covering electrical insulating materials, were prepared in response to a long-felt need for purchase requirements for these materials. Revisions in the structural timber specifications included the incorporation of dressed sizes and tolerances and a more detailed classification of thicknesses for this important structural material.

INDUSTRIAL STANDARDIZATION

BY P. G. AGNEW

SECRETARY, AMERICAN STANDARDS ASSOCIATION

NRA EMPHASIZES VALUE OF STANDARDS

Present Significance.—One of the most important effects of the operation of the NRA has been that practically every industry has come to a greater realization of the value of standards as major managerial and production tools. It should not be inferred from this that American industry has not known the advantages that standards could bring, but rather that by bringing greater effectiveness to trade groups the NRA has made more obvious the need for welding all national standardization activity into a cohesive movement so that the maximum benefits can be achieved.

Savings for Railroads.—An outstanding example of this is found in the case of the railroads which for many years have been very active in setting up standards for materials they use. With the appointment of a Federal co-ordinator for transportation, there has developed a school of opinion to get all the roads to adopt such standards as has been approved by various associations, to reduce the multiplicity of designs for many materials and thereby reduce costs. By unifying as many standards as possible, tremendous savings could undoubtedly be made. Furthermore, by correlating inter-industry interests as far as standards are concerned, it means that all parties speak the same language and greater satisfaction results.

The Case in Steel.—What has happened in recent years in the steel industry illustrates the advantages of such action. For a long time the individual steel companies have had their own standards for steel shapes for building construction. In setting up these standards, some of the companies undoubtedly took their customers' point of view into consideration. Yet the fact remains that although the railroads are one of the largest users of this product, these company standards had never been formally submitted for approval by the American Railway Association. Recently all of these different company standards for steel shapes were pooled in the American Institute for Steel Construction which, in turn, expects to submit them to the American Standards Association for approval as American Standards. When this occurs, it will be the first time that the railroads as a group will have had an opportunity to express their opinions officially or to bring to bear their points of view as to the contents of the standards. When one realizes that the steel industry as a whole at present manufactures products to comply with 40,000 different specifications, it is easy to see what tremendous savings would be made if this number were to be reduced by only one or two per cent. To translate this into terms of money, the British steel industry affords some forceful facts. In 1901, steel makers in England agreed upon standards that cut down the number of steel shapes from 330 to 175. A survey made in 1913 showed that 95.7 per cent of production was to these 175 standard sections, resulting in a saving of five shillings per ton, or about £1,000,000 per year.

Effect on Automobile Costs.—Those familiar with some of the facts and figures for American industry willingly admit that, in spite of the standardization work that has already been done in this country, only a small percentage of the advantages that might be secured have been achieved. Basically this has little or nothing to do with the arguments for and against rugged individualism, private initiative or super-salesmanship. It goes much closer to the core of things as can be shown in the case of the automobile industry which today is perhaps more standardized than any other. In fact, standardization and mass production methods have been the life blood of car manufacturers because they have brought costs down to the point where great numbers of people can afford to buy. But for these two things—standardization and mass production methods—it is believed that the cost of a good light car today would be in excess of $5,000. Standards such as the industry has developed have not prevented a great variety of models and styles to appeal to varying tastes, but they *have* lowered costs and widened the market. Before standards had been developed for screw threads, bolts and nuts, ball and roller bearings, tire and rim sizes, spark plugs, head lamp lenses, springs, bumper, storage batteries or any of more than 400 other standards that have been approved by the Society of Automotive Engineers, it required from four to six months to design a new motor which today can be designed in about as many weeks. As to the effect of these standards on customer acceptance, a careful study made about three years ago showed that the greatest single factor in completing sales of a certain make of car was the color and kind of upholstery; and the second most important factor was the color of the paint job! In other words, the industry had developed its product to such a satisfactory point technically that the customer looked to other details such as upholstery, color of paint, streamlining and general appearance for making its final choice.

Grades and Standards in Codes.—It seems inevitable that more and more attention will be given to standardization, regardless of what the final developments are under the NRA. Pressure from all sides is sure to bring it about—the need for expanding markets, an equal need for reducing manufacturing costs, the closer cooperation within and between industries, and the general efforts being made individually and collectively to make greater use of the tremendous investment the country has in production facilities that are at present being used way below capacity, while there are still so many human wants and needs that are far from being answered. An analysis made of the trade-practice section of 150 industrial codes already approved by the President under the NRA shows that 56 contain no provisions dealing with misrepresentation of commodities to consumers, nor do they contain standards or grade marking requirements for commodities. Ninety-four codes contain one or more clauses having to do with misrepresentation, grades, or standards, but of this number the clauses in only 55 codes forbid misrepresentation and do not specify that any special information about products must be given. There are 39 codes with clauses requiring certain information or recognizing grades and standards in some way.

BUREAU OF STANDARDS AND THE A.S.A.

With the inauguration of a policy of governmental economy instituted by the present Administration, the Federal Government, which through the Bureau of Standards had been actively engaged in various standardization activities, has decided to curtail many of the activities formerly carried on at Government expense. Guided by the rule that "whatever industry can satisfactorily do for itself should no longer be done at the expense of the taxpayers," the Secretary of Commerce invited the American Standards Association in June to help carry the burden of the commercial standardization activities of the Bureau of Standards.

Under plans that are now being worked out, the Government will encourage the extension of the work of the American Standards Association and the utilization of its services by industry and by groups desiring to establish standards. Under this plan of coöperation on simplification and commercial standards work, the Bureau of Standards is continuing on a reduced basis while the A.S.A. is increasing its activities and responsibilities. This trend toward the centralization of all industrial standardization work in one central clearing house where producers, consumers and representatives of the general public interest have both an opportunity and a right to make their points of view known and effective seems quite in line with the ultimate aims of the N.R.A. to encourage industrial self-regulation wherever industry demonstrates its ability and willingness to function reasonably for itself and within the limits set by law.

Other Government departments besides the Bureau of Standards have for many years been active in standardization work not only to help in carrying out its own buying but also to provide information as a guide to industry and the general public. The Federal Specifications Board acts primarily as a unifier of specifications for all the purchasing branches of the Government. The Bureau of Agricultural Economics has also developed standards important in its field of activity. Although under the economy program the work of the Bureau of Standards, including the Divisions of Simplified Practice, Specifications, and Trade Practices, is to be greatly curtailed, the valuable contribution which it has made in developing commercial standards and simplified practice recommendations, which have been used by so many industries in marketing their commodities, will be continued under a coöperative arrangement now being worked out between the Government and the American Standards Association.

STANDARDIZATION DEVELOPMENT

The history of all industrial countries shows that the development of standardization has followed three distinct steps. First, individual companies developed standards for their own use; then group or association standards were agreed upon by trade and technical associations and government departments; finally came the need for intergroup or national standards in which trade associations, technical societies and government departments coöperate just as individual companies within an industry work together in setting up standards that apply to their own work. All but one of the 24 national standardizing bodies came into existence during or since the war.

Industrial development since 1914 has made it more and more evident that in a great many cases there is a definite inter-industry interest in an increasing number of standardization problems where matters of concern to one group may penetrate intimately into several other industries so that a specific standard may be of as much concern to affiliated and consuming interests as it is to the producing group. An example will show how this over-lapping of interest is important in the setting up of standards. Several years ago, there developed a feeling that there should be certain definite and agreed standards for wood poles for power and communication lines. Naturally, the producers of wood poles were those primarily interested, but when a committee was finally formed to formulate a standard and submit it for approval, it was found highly desirable to secure representatives not only from the producers but also from power, telephone, telegraph, municipal, and steam and electric railway groups, and also the American Wood Preservers Association and the Federal Government. All these were officially represented on the joint technical committee whose job it was to prepare specifications satisfactory to all the groups, users as well as producers. The work was done on a thoroughly sound technical basis, and standards were finally approved satisfactory to all. Although the specifications for wood poles have been in existence only a little more than two years, they have already proved their value because they have eliminated many of the confusing elements which have existed in the past and which have come into being largely because of sales competition between various groups. The standards have already brought about a freer national market so that now the product can flow from the forest through the treating plant and into use without having to be ear-marked from the beginning for particular consumer uses.

AMERICAN STANDARDS ASSOCIATION

Purpose and Organization. — The Association is essentially an industrial federation, or legislature, which brings together all those directly concerned with a project to study a specific problem, to formulate a workable and acceptable standard and submit it for approval to an authorized committee representing all the groups — producers, consumers and general interests—having a major interest in the problem in hand. When the great preponderance of committee opinion is favorable to a project, then it is submitted to the Association for approval as an American standard with the full knowledge that the recommendation represents a real national opinion. Thus the A.S.A. functions as a kind of court of review where the points of view of various groups can be expressed and given consideration in the establishment of national standards. Coöperative effort of this sort prevents one group from legislating against another whose interests are affected, and at the same time provides a working medium for dealing with basic problems in a practical manner. In the A.S.A. there is found a medium for all groups to arbitrate their differences for themselves and to arrive at agreements that promote the best interests of all. Any responsible trade, technical, social, or governmental organization can request the initiation of a standardization project under the rules of procedure of the American Standards Association which provide for a proper balance of representation of producing, consuming and general interest groups on all committees appointed to develop a standard. Membership in the Association is not a prerequisite for representation on any technical committee. A technical staff carries on the work of the various projects, while the final approval of standards rests with the Standards Council made up of representatives of all the 37 member-bodies of the Association. The general administration of the Association's work is vested in a Board of Directors of nationally known industrial executives who give generously of their time, energy, and thought to the broader aspects of the Association's work.

Coöperation. — Approximately 600 national organizations are officially participating in the work on various standardization projects, and the membership of technical committees that study and formulate national standards to submit for approval includes about 2,850 individuals representing practically every branch of industry. Forty-three branches of the Federal Government are actively participating in A.S.A. work, while six executive departments are members of the A.S.A. with representation on the Standards Council. The Bureau of Standards is officially represented on 86 A.S.A. projects, on some of which it is taking the official leadership. As a great research laboratory, the Bureau places men on the technical committees as independent technical experts. In a number of cases where there has been an acute need for research work, special funds have been raised by industry to support this research at the Bureau.

Procedure. — Work on individual projects is handled chiefly through technical committees made up of accredited representatives of all interested groups including manufacturers, employers, distributors, consumers, technical bureaus of the Federal Government, and technical and trade associations. Sometimes subcommittees are appointed to study and discuss details; sometimes this work is done by entirely separate bodies or individuals. In either event, the committee must be in essential agreement before the recommendation can be submitted to the Association for final approval. Frequently standards that have been developed by other associations and societies are submitted to the American Standards Association for approval as American standards in order to give them a nationally recognized standing among all industries.

Approved Standards. — The 255 standards already approved come under the following classifications: civil engineering, automotive engineering, transportation, ferrous and non-ferrous metallurgy, chemical, mining, wood, pulp and paper, textile and miscellaneous. The list of completed standards is too long to enumerate here. There are a number, such as those for screw threads and for cylindrical fits and limit gages for interchangeable manufacture, that pertain to several industries. Also those for bolts, nuts and rivets, pipe flanges and fittings, specifications for wrought iron and steel pipe, ball and roller bearings, and small tools and machine tool elements are not confined in use to any one particular business. The safety code for mechanical refrigeration, completed about two years ago but now undergoing revision to cover newly developed refrigerants, not only helped to protect the lives of many people but also materially helped both municipalities and the manufacturers by having a general agreement on various aspects of installation and use.

In the electrical field, the National Electrical Code and the National Electrical Safety Code are widely recognized and followed. It has been stated by competent authority that what these two codes have saved the power and light industry is worth more than the entire cost of operation of the American Standards Association to date. A series of standard installation requirements for gas burning appliances, that will go a long way in clearing up many of the manufacturers' and distributors' problems, were recently approved. A code on the use of explosives in bituminous coal mines was approved some years ago and has been widely followed, representing as it does the joint opinion of the operating companies, manufacturers of explosives, state mine inspectors, professional mining engineers and other groups. There are a number of exceedingly important projects that are not yet finished; among them a safety code for grandstands, a general ventilation code, standards for manhole frames and covers, the classification of coals from lignite to anthracite, a project on foundry equipment and another on motion picture equipment.

Safety Codes. — From its earliest beginnings, the Association has been interested in the development of a group of about 50 national safety codes which is helping greatly to clear up the confused situation which has existed for a number of years in safety requirements of various states which, in many cases, have put industry in the exceedingly embrarrassing position of trying to follow the conflicting requirements of insurance companies and state inspectors. This is especially important for many manufacturers of equipment that sell in various states. The development of nationally acceptable codes clears up this confused situation.

About 35 safety codes covering such things as abrasive wheels, aeronautics, elevators and escalators, floor and wall openings, railings and toe boards, foundries, power presses and foot and hand presses, and window washing, have all been approved and are not only being extensively used by industries themselves but are also being widely adopted, completely or in substance, by state regulatory bodies as their own regulations. Each code is in the hands of a technical committee made up of representatives of manufacturer and employee groups appointed by their trade and technical associations, casualty insurance groups, governmental regulatory bodies, and other interested units. Both the stock and mutual casualty insurance companies have officially adopted the policy of bringing their requirements into agreement with the approved codes. This program is a good illustration of how coöperation between industry and government works for the general good. Because of what has been accomplished so far in this program, more and more state governments are relying upon the A.S.A. for the formulation and development of acceptable safety codes, a function formerly performed almost entirely by state personnel. From 250 to 300 national organizations, and all of the state governments interested, are officially coöperating in this safety code program.

International Coöperation.—International Standardization came into being with the formation of the International Standards Association in Switzerland early in 1929. Notable work has already been accomplished internationally on ball bearings so that now over 50 of the more important sizes are standard throughout the world and are completely interchangeable. Other subjects that have been given international attention include screw threads, fits between cylindrical parts, shaft heights for electrical machinery, couplings, grinding wheels, pipe, and nomenclature and methods of test of petroleum products. The international secretariat for the latter project was assigned to the American group in 1930 and is now in course of development. The organization meetings of two new I.S.A. technical committees were held in the summer of 1933 in London. One committee deals with nomenclature and methods of test of petroleum products, and the other with tires, rims and tire valves. The American Standards Association is a member of the International Standards Association.

SOCIAL SIGNIFICANCE OF STANDARDIZATION

The social effect of standardization has been far-reaching. It has greatly reduced both the production and sales cost of articles, and, by keeping the varieties of similar goods to a reasonable minimum sufficient to meet all ordinary needs, it has increased capital turnover by making it possible for the manufacturer to meet current demands without carrying an excessive inventory. Greater leisure and comfort have been brought to a larger number of people, and the standard of living of society as a whole has been raised because one of the most important influences that standardization and mass production methods exerts is that they take the new discoveries and inventions of scientists out of the laboratory and bring them within the reach of the mass of the population at reasonable prices.

Not many years ago, industry's primary problem was how to make an increasing supply of goods to meet the demand. Today the problem has shifted its emphasis and manufacturers now must not only seek ways of distributing more goods at reasonable prices so that the vast sum of money invested in plants and equipment can earn its keep and at the same time give employment to workers and maintain purchasing power at a high level, but also to create a wider spread between manufacturing costs and sales price so that manufacturing and distributing may be done at a profit.

Standardization can play as important a role in the solution of these problems as it did in increasing production. One of its essential effects is to stabilize and broaden markets, because uniform products give uniform results in use. One of the best evidences of this is the tremendous growth in recent years of uniform quality packaged goods. Whether the times are good or bad, the sales records of many companies will show that the public favors known qualities in the goods it buys. For this reason, good standardized articles selling at a fair price enjoy a wider market at a low sales cost to both the manufacturer and the distributor. With goods of this kind, the need for costly, high-pressure sales methods is reduced almost to the vanishing point.

With a standardized product, guess work is eliminated because the buyer can make his selection from goods of known quality, and the buyer and the seller speak the same language. Production costs of standardized articles are inevitably lower because the demand for making up special types and special sizes is eliminated and manufacturers can make up goods for stock, which in turn hastens deliveries. If a real program of standardization is initiated in a plant, it inevitably does away with uneconomical practices that have resulted from accident or unhappy tradition. Indecision in both production and utilization is done away with, allowing more time and thought to be devoted to design.

In the field of intermediary goods where one manufacturer provides materials that another uses in making an ultimate consumer product, standard specifications bring tremendous advantages to the purchasing agent because through them he can secure competitive bids on the same quality of material and the details of his job are greatly simplified. Routine procedure for the acceptance of material becomes much easier, and the greater uniformity and reliability of purchases made under standard specifications, and the fact that qualities are more thoroughly understood, make for greater economy in use. However, if specifications are to remain serviceable, they must be frequently checked and revised so as to keep pace with improvement in production methods.

XIX. ENGINEERING AND CONSTRUCTION

COMMERCIAL AVIATION

By Andrew F. Haiduck

Bellanca Aircraft Corporation

SCHEDULED AIR TRANSPORTATION

Passengers. — American-operated air lines (domestic and foreign extensions) flew 25,862,120 miles and transported 235,139 passengers in the first half of 1933. The volume of passenger business handled by these scheduled air transport services showed a marked increase in June, 1933. This advance was partly seasonal but the gain was much greater than in the same month in 1932. Passenger traffic increased in 1933 from 44,070 in May to 59,048 in June. In 1932 the seasonal increase was from 49,619 in May to 51,871 in June. The average length of trips made by passengers during the first six months of 1933 was 327 miles. The highest average previously recorded was 282 miles in the period July-December, 1932. Passengers are not only making longer journeys by air but also are occupying more of the space available. In June, 1933, 54 per cent of the available seating space on aircraft of the domestic lines was occupied and in many months the average has been 30 and 40 per cent.

Mail. — During the same period (first six months of 1933) the domestic and foreign extensions of American air lines carried 3,648,217 pounds of mail. Mail carried this year was less than last year. Mail carried in the first six months of 1932 was 4,342,507 pounds compared with 3,648,217 pounds in the first six months of 1933.

Express. — Air express showed a greater increase in volume of traffic than any other branch of scheduled air transport. Express carried was 1,055,876 pounds in the 1933 period, a substantial increase over 712,638 pounds carried in the first six months of 1932. At least one manufacturer has had the foresight to produce a large cargo transport designed to meet the demands for greater pay loads. Several operators contemplate using this type of airplane on overnight schedules between centers of population. A few of the commodities now handled by air express are cancelled checks, films, newspapers, and perishables.

Schedules and Fares.—The introduction of new high speed twin engine transport on the airlines by several operators has further decreased the time between important stops. These transport airplanes cruise at 180 miles per hour, and a flight from New York to Los Angeles is now accomplished in 20 hours. The latest transport airplane has a cruising speed of 206 miles an hour. This equipment will probably reduce the elapsed time from coast to coast to 14 hours. Percentage of trips completed on the domestic airlines in the first six months of 1933 was 95. Of 49,925 trips begun, 47,525 were completed, others being canceled for various reasons chiefly because of unfavorable weather.

The average cost of a trip on an airline in continental United States was 6.1 cents per mile on June 30, 1933. In 1926 the average fare rate was 12 cents per mile. The average rate dropped to 10.6 cents in 1927, increased to 11 cents in 1928 and was back at 12 cents in 1929. In 1930 there were general reductions which pushed the average down to 8.3 cents and in 1931 it had dropped to 6.7 cents. There has been little variation since. The average in 1932, as at present, was 6.1 cents. On long journeys, the price of a passenger ticket generally includes meals served in flight.

Personnel.—There were 5,997 persons employed by air lines on July 1, 1933, an increase of about 500 since June, 1932. Of the 5,997 employees, 575 were pilots, 192 co-pilots, 2,236 mechanics, 1,613 other hangar and field personnel, and 1,381 office personnel. Three American airlines employ hostesses on their aircraft, the number engaged in this occupation totaling approximately 100. An airline hostess has the responsibility of seeing that passengers have a comfortable and enjoyable journey

AIR TRANSPORT OPERATION

	July–Dec. 1932	Jan.–June 1933
DOMESTIC		
Miles flown	23,402,059	23,012,743
Passengers carried	256,691	196,835
Express—pounds	592,778	660,082
Mail—pounds	3,311,987	3,429,801
Mail payments	$10,096,271.73	$9,303,914.00
Passenger miles flown	72,504,052	64,502,479
FOREIGN		
Miles flown	2,862,494	2,849,377
Passengers carried	35,036	38,304
Express—pounds	295,405	395,794
Mail—pounds	254,229	218,416
Mail payments	$3,494,345.16	$3,454,159.21
Passenger miles flown	10,518,997	12,139,914
DOMESTIC AND FOREIGN		
Miles flown	26,264,553	25,862,120
Passengers carried	291,727	235,139
Express—pounds	888,183	1,055,876
Mail—pounds	3,566,216	3,648,217
Mail payments	$13,590,616.89	$12,758,073.21
Passenger miles flown	83,023,049	76,642,393

Summary of Operations.

Miles of American-operated air transport routes:	
Domestic	26,221
Foreign	19,875
	46,096
Miles in operation with United States mail:	
Domestic	25,035
Foreign	19,861
	44,896
Miles in operation with passengers:	
Domestic	25,896
Foreign	19,795
	45,490
Miles in operation with express:	
Domestic	24,228
Foreign	19,781
	44,009
Airplane-miles scheduled daily (average):	
Domestic	146,778
Foreign	11,759
	158,537
With United States mail:	
Domestic	103,834
Foreign	11,406
	115,240
With passengers:	
Domestic	137,324
Foreign	11,599
	148,923
With Express:	
Domestic	136,006
Foreign	11,515
	147,521

Number of Air Transport Services		120
Mail	83	
Passenger	111	
Express	106	
Domestic routes		102
Mail	67	
Passenger	94	
Express	90	
Foreign routes		18
Mail	16	
Passenger	17	
Express	16	
Number of scheduled air transport operators		28
Domestic	24	
Foreign	6	

MISCELLANEOUS FLYING

Miscellaneous flying includes such operations as experimental, exhibition, industrial, student instruction and pleasure flying. Miscellaneous operators carried 434,586 passengers. Of the total 294,799 paid for air transportation and 139,787 were not flown commercially. The total mileage flown in miscellaneous flying was 32,748,485 miles during the first six months of 1933.

AIRCRAFT ACCIDENT RECORD

Accidents.—American-operated air passenger lines had but two passenger fatalities in the first half of 1933. Passenger miles flown (a passenger mile being the equivalent of one passenger flown one mile) were 76,642,393, making the passenger miles flown per passenger fatality 38,321,196. The total number of accidents was 48, including five fatal accidents, but there was only one fatal accident which involved loss of passengers' lives. Miles flown by aircraft of the scheduled operators totaled 25,862,120 and miles per accident during the period were 538,794. Passenger fatalities were fewer in number than in any six months' period since July-December, 1930. In the latter period and also in the six months January-June, 1928, the airlines operated with only two passenger fatalities. The figure showing passenger-miles flown per passenger fatality was greater for the period January-June, 1933, than for any other six months' period.

Causes.—The causes of the 48 accidents were divided as follows:

	Per Cent
Personnel errors	15.61
Power Plant failures	21.88
Airplane failures	12.5
Weather	27.09
Airport and terrain	14.59
Other causes	8.33

Of the 48 accidents, 32 occurred in day operations and 16 at night.

AIRPORTS

Thirty-four new airports were established between the first of August and October first. Since airports are the terminals for airlines the establishment of additional airports is essential to the continued progress of air transport. On Oct. 1, 1933, there were 2,152 airports and landing fields. Of this number, 552 were municipal airports, 649 commercial airports and the remainder divided among Army, Navy and intermediate fields. A detailed subdivision of the number of airports and landing fields as of Oct. 1, 1933, follows:

Municipal airports	552
Commercial airports	649
Department of Commerce intermediate fields	264
Army airdromes	55
Naval air stations (including Marine and Coast Guard)	18
State-operated fields	23
Marked auxiliary fields	541
Private fields	40
Fields for miscellaneous Government activities	10
Total	2,152
Proposed airports	74

Airports and landing fields having night lighting equipment:

Municipal	205
Commercial	121
Intermediate	246
Army	27
Navy	9
State	3
Auxiliary	11
Private	5
Total	627

AIRWAYS

Lighted Mileage. — In accordance with the governmental economy program no new airway construction has been undertaken for the current fiscal year. However, one entire airway and six airway sections had been added to the nation wide network by the program in 1932, bringing the total of lighted mileage to 19,500.

Sectional Maps. — Seventeen sectional airway maps have been published by the Aeronautics Branch. From the standpoint of maps issued the project of charting the entire United States with 87 maps designed especially for air navigation is about one-fifth completed. In point of work done this project is even farther advanced, as a substantial amount of compilation, drafting and flight checking with 13 additional units which are in progress. Each sectional airway map covers an area of 2 degrees latitude and 6 degrees longitude. Based upon an accurate chart of the territory showing political boundaries, rivers, lakes, cities and highways, the sectional map sets forth such features as airways, airports, intermediate and other landing fields, beacon lights and radio stations. As successive maps have been issued a number of improvements have been made in the special information that is necessary for air navigation. It has been found that information as to prominent land marks is so valuable to airmen that a special effort is being made to include as many as possible on each map. Thus on recent maps the airmen will find many such notations as "brick tower," "traffic circle," "monument."

TRANSOCEANIC AIR TRANSPORT

The appropriation of funds by Congress for an experimental section of the Armstrong seadrome marked an important step forward towards the realization of reliable transoceanic air transport. The seadrome is a floating island with the floats located well below the maximum possible wave disturbances. Thus this floating island can maintain a horizontal attitude with no pitch or roll and serve as a landing place for transoceanic aircraft. The seadrome will have complete facilities for handling and servicing aircraft. In addition directive radio beacons will be installed. Upon successful demonstration of this experimental section funds will be appropriated for the construction of five of these floating airports. They will be anchored 500 miles apart between the United States and Europe. This will be the first radio airway across the Atlantic.

RADIO ON AIRWAYS

A system of radio aids for blind landing has been developed and demonstrated. Hundreds of completely blind landings have been made by this system. Also landings have been made by its aid at a commercial airport during conditions of fog which kept all regular air traffic on the ground. This system gives position in all three dimensions — lateral, longitudinal and vertical — which is the information that the pilot must have to make a landing. Lateral position is given by a runway localizing radio beacon, longitudinal position by a marker beacon, and vertical position by a landing beam. The pilot hears the marker beacon signals in his headphones. The indications from the runway localizing beacon and the landing beam are received on a single instrument with two pointers. One pointer is vertical and tells him his position laterally and the other is horizontal and tells him his position in the vertical plane. Operating the airplane controls in such a manner as to keep the two pointers crossed at right angles like the cross hairs of a gun sight, the pilot keeps the plane on the proper path for landing. When he hears the second marker beacon signal, he levels off and lands. The airplane equipment includes a distance indicator and other auxiliary aids. The importance of these developments in blind landing as a contribution to safe, reliable air transport operations cannot be emphasized too strongly. There are a number of important problems awaiting active work, research on which would materially aid the progress of aeronautics. One of these is the development of systems of collision prevention. A possible system using a radio method has already been outlined.

AIRCRAFT MANUFACTURE

Production. — Airplanes manufactured in the United States during the first six months of 1933 totaled 669, of which 306 were for domestic civil use, including 215 monoplanes, 84 biplanes, and 7 autogiros. Of the monoplanes, 120 were open cockpit and 95 were cabin types. The biplanes included 26 open cockpit and 58 cabin craft. Of the airplanes produced from Jan. 1 to June 30, the total of 669 was divided as follows: 306 for domestic civil use, 212 for military delivery and 151, including civil and military, for delivery to purchasers in foreign countries. The 306 craft manufactured for domestic commercial or civil use were produced by 120 companies or individuals. Of these, 2 companies manufactured 40 or more aircraft each, or approximately 25 per cent of the total. Four companies built 11 to 27 aircraft each; 7 built 4 to 7 aircraft each; 1 built 2 aircraft. There were 107 aircraft manufactured by companies or individuals producing only 1 each, and these 107 constituted approximately 35 per cent of the total aircraft built for domestic civil use. In 1932, during the first six months, manufacturers of airplanes produced 722 aircraft. These included 351 for domestic civil use, 325 for military delivery, and 46 for export. Among the 351 airplanes manufactured for domestic civil use were 264 monoplanes, 71 biplanes, and 16 autogiros.

Types of Aircraft. — There has been a very distinct tendency in some quarters towards the twin engine transport with a seating capacity from 10 to 20. The reason has been the increased demand for reliability and performance. There are now on

AIRCRAFT PRODUCTION

(First six months of 1933)

MONOPLANES:	
Open cockpit (landplanes):	
1-place	40
2- to 4-place	78
Amphibians	2
Total, open	120
Cabin (landplanes):	
1- to 2-place	23
4- to 7-place	41
8-place and over	30[1]
Amphibians	1[2]
Total, cabin	95
Total, monoplanes	215
BIPLANES:	
Open cockpit (landplanes):	
1-place	4
2-place	11
3-place and over	11
Total, open	26
Cabin:	
2- to 4-place	40
10- to 17-place	16[3]
Amphibians	2[4]
Total, cabin	58
Total, biplanes	84
Autogiros	7
Military airplane deliveries	212
Airplanes exported	151[5]
Grand Total	669

[1] Includes 28 multiengine craft.

[2] Multiengine craft.

[3] All multiengine craft.

[4] Includes 1 multiengine craft.

[5] Does not include planes listed in the above breakdown or planes exported in 1933 which were manufactured prior to January 1, 1933.

the airlines at least three types of these twin engine transports with cruising speeds in excess of 160 MPH. All of these transports have retractable landing gears with resultant increases in speed from 10 to 20 MPH over the conventional exposed landing gear. The research activities of the National Advisory Committee for Aeronautics have been largely instrumental in obtaining the high speeds of these twin engine transports. The results obtained in propeller research with respect to propulsive efficiency and optimum location of nacelles have been applied to all of these twin engine transports with gratifying results in performance. Another type of airplane which made its debut in 1933 was the high speed single engine transport carrying from seven to ten passengers. The landing gear in his type of airplane is also retractable. The latest model of the type has a maximum speed of 250 MPH and a cruising speed of 206 MPH. Upon installation of this type of airplane on some feeder lines it will be possible to fly from Spokane to New York in fourteen hours.

Materials of Construction.—The use of stainless steel continues to grow. Its serviceability and corrosion resistance have been demonstrated in such parts as exhaust manifolds, wing ribs, streamline wire and floats. A large percentage of the new airplanes appearing in 1933 were constructed of duralumin. Most of the high speed airplanes had monocoque fuselages of riveted duralumin and wing also of duralumin. The use of wood for primary structural members has almost ceased with the exception of its use in the smaller and cheaper aircraft for private use.

RESEARCH

National Advisory Committee.—The research needs of the Army, Navy and the aircraft industry are filled almost entirely by the National Advisory Committee for Aeronautics. This committee is charged with the supervision and direction of the scientific study of the problem of flight with a view to their practical solution.

Controllability and Stability.—The question of control at very slow speeds has been the subject of much investigation in 1933, particularly with respect to aileron control. All conceivable types of ailerons in conjunction with square and sounded wing tips have been tested and the relative merit of each combination determined. These comparisons are all based on wind tunnel tests in which the control surfaces are fitted to model wings having the same span, area and airfoils section.

Increased Speed Range.—Many arrangements of slots and flaps have been tested in the search for lower landing speeds and increased speed range. With suitable slots and flaps the lift of ordinary airfoils has been in many cases doubled without appreciable increases in drag. The direct application of these devices to military and commercial aircraft has resulted in the attainment of much slower and consequently safer landing speeds. Because of the high lift coefficients obtainable with slots or flaps less wing area is needed, which means increased maximum speed. The ratio of maximum to minimum speed known as speed range has, therefore, been substantially increased for airplanes designed in 1933. Further reductions in landing speed have also been obtained by the use of an air-braking split flap.

Reduction of Drag.—The mutual interference effects of the component parts of an aeroplane have been very carefully studied. Since the drag of any particular component increases as the square of the speed, it is of the utmost importance to reduce the drag of all items. It has been found that small protuberances on airfoils have a very deleterious effect on the lift of the airfoil. Rectangular protuberances having a height of ½ of 1 per cent of the airfoil cord produced marked interference effects when located on the forward portion of the upper surface. Various tests of combinations of struts and landing gears showed that a substantial reduction in interference drag could be obtained by suitable disposition of the various component parts. It has also been found that the resistance of two struts in tandem could be materially reduced if certain minimum distances between struts are maintained.

Airfoils.—For the first time since the lift characteristics of an airfoil were discovered, a systematic study has been made on a basic family of airfoils. In this particular series of tests the effects of variations in such things as camber, location of maximum camber, thickness and trail angles have been determined. From this data it is now possible to predict the characteristics of almost any conceivable airfoil.

Seaplanes. — Much valuable information regarding the effects of variations in dimensions and form of hull on take off and performance has been obtained from the N.A.C.A. tank for the study of hydrodynamic problems pertaining to aeronautics. The frictional resistance of those surfaces of a hull exposed to the passing water has been determined for speed up to about 15 MPH.

Engines.—With gasoline of a very high anti-knock value now available, the progress in engine design has been in the continued use of superchargers. The result has been noted in the marked increase in performance of the modern airplane. The year 1933 also marked the first year in which the twin row radial engine has been installed in commercial airplanes. With its much smaller overall diameter than a single row radial engine of the same horsepower, the twin row radial engine has also played an important part in the increased performance of the airplane of today. The air cooled engine is still almost universally used because of certain distinct advantages in maintenance.

Structures.—Research in structures has been largely in the direction of monocoque design. The actual deflections and strengths of bulkheads used in stress skinned design have been so completely investigated that the so-called factor of ignorance in monocoque design has been eliminated.

Radio and Blind Landing.—Radio research has kept pace with aeronautic research. The blind landings referred to previously have only been made possible by suitable radio equipment and instruments. There has been marked improvement of 2-way plane to ground telephone equipment. Apparatus has been improved in respect to convenience, simplification and weight. The use of ignition shielding has become standard practice on airplanes equipped with radio and the performance of radio installations has been materially improved. There has been some progress on the design of locked tuning and push-button selection of stations.

AMERICAN MACHINERY

By W. H. Rastall

Chief, Machinery and Agricultural Implement Division,
Department of Commerce

ECONOMIC FACTORS

Never did the American machinery industry have a year like 1933. Not only did the depression carry this industry to exceptionally low levels, but manufacturers, economists, government authorities and the business community generally developed a new and better understanding of the fact that general prosperity is closely associated with the welfare of the capital goods industries, and recovery will not advance far without appropriate revival in this area. It has been calculated that during recent months conditions in the machinery and equipment industries accounted for 62 per cent of the total unemployment experienced in this country.

EQUIPMENT POLICY

Under the National Recovery Act, industries were asked to plan for self-government, to write their own codes designed to end unintelligent competition. In the early codes paragraphs were included providing that there should be no increase in factory capacity, this being an important source of unintelligent competition. However, it was soon recognized that such a policy followed in a large number of industries would defeat the very objective of the NRA because it would prevent revival of the equipment industries which, in turn, have accounted for such a large percentage of unemployment. In this way for the first time we see the beginning of an equipment policy for American industry, something that has long been needed. Beginning about August there was an abrupt change in policy; equipment clauses were excluded from the codes, efforts were made for the relief of the capital goods industries, the Public Works program was launched, the Navy was authorized to build 32 vessels, the Tennessee Valley and a large number of importan projects started designed to re-employ those who in 1929 had been s active in such fields.

INDUSTRIAL PRODUCTION

The following statistics reflect th situation that has existed. The severity of the experience generally is shown in the Federal Reserve Boar unadjusted figures covering industria production, data which includes the experience of the capital goods industries, as well as consumers goods

MANUFACTURES*

	Index No
April and May, 1929	128
1932:	
July	55
August	58
September	66
October	67
November	63
December	58
1933:	
January	63
February	63
March	58
April	68
May	80
June	93
July	97

* Decline for the year July, 1932 to July, 1933, was 57 per cent.

INDUSTRIAL PRODUCTION

	New Orders		Exports	
	Index No.	Decline	Amount	Decline
Machine Tools:				
1929				
Feb.	336	......	....	......
1931				
June	....	....	$3,288,302	......
1933				
Mar.	13.3	95.7%	....	......
April	15.8		231,045	93%
May	27.1		248,547	
June	39.0		268,207	
July	52.8		298,067	
Aug.	57.2		520,210	
Sept.	55.8		352,030	
Oct.	67.0		....	

	New Orders		Exports	
	Index No.	Decline	Amount	Decline
WOODWORKING MACHINERY:				
1929				
Jan.	125.1	......	....	......
Dec.	....	......	$398,125	......
1933				
Mar.	3.2	97.4%	....	......
April	5.1		....	......
May	10.4		18,272	95.4%
June	14.2		38,633	
July	13.3		67,255	
Aug.	11.1		53,830	
Sept.	12.3		53,974	
Oct.	7.9		....	
INDUSTRIAL PUMPS				
1929				
Feb.	....	......	$842,737	......
April	151.9	......	....	......
1933				
Jan.	19.3	87.2%	....	......
Feb.	29.6		....	......
Mar.	28.1		53,226	93.7%
April	32.6		79,404	
May	35.7		100,819	
June	51.4		79,594	
July	51.1		112,963	
Aug.	54.9		95,979	
Sept.	53.7		111,648	
Oct.	44.5		....	
STOKERS:*				
1929				
June	123	......	....	......
1933				
Feb.	20.4	80.3%	†	
Mar.	30.2			
April	24.8			
May	42.7			
June	60.0			
July	75.7			
Aug.	74.5			
Sept.	52.7			
FOUNDRY EQUIPMENT:				
1928				
May	336	......	....	......
1931				
June	....	......	$649,387	......
1933				
Mar.	9.8	97%	....	......
April	19.4		....	......
May	25.6		....	......
June	45.5		11,400	98.2%
July	48.6		23,340	
Aug.	56.28		44,644	
Sept.	34.9			

* H. P. Basis.
† No Export Classification.

This latter group, however, apparently declined only, say, 20 per cent because such data as are available concerning these capital goods groups show declines of over 80 per cent, in fact, over 90 per cent, and at the extreme 97 per cent, and on the export side, at the extreme, over 98 per cent. These figures deserve careful study.

These figures suggest that new orders in machinery industries generally declined over 80 per cent as compared with the 1929 peak. They further suggest that the economic corner was turned in the first quarter of 1933, and very substantial recovery made subsequently. It is acknowledged that this data is fragmentary, inadequate, yet probably very significant. Furthermore, they suggest that conditions abroad parallel those at home, but in lesser degree as most foreign countries are not so highly industrialized.

	New Orders		Exports	
	Amount	Decline	Amount	Decline
AIR CONDITIONING EQUIPMENT*:				
1929				
May	....	......	$516,470	......
1931				
July	$1,719,000	......	....	......
1932				
Dec.	....	......	14,623	......
1933				
Jan.	....	......	17,914	97.2%
Feb.	343,000	80%	42,623	
Mar.	349,977		30,246	
April	412,216		22,069	
May	580,222		19,550	
June	801,831		34,718	
July	793,556		32,083	
Aug.	912,905		35,672	
Sept.	872,645		45,739	
Oct.	830,440		....	

* Blowers and Ventilating Machinery only—Class 7641.

RESEARCH AND DEVELOPMENT WORK

The Statistical Research Section of the NRA is accumulating much more satisfactory statistical material, and it is hoped that in the near future it will be in a position to report its findings covering the whole situation which unquestionably will be a more perfect picture than the above, but even the material now available suggests that employment has not fallen off as violently as have new orders. Clearly, manufacturers have done much to spread work. During the recent months of business inactivity much research and development work has been carried forward, even though this involved sacrificing reserves that were carefully built up in more active years. But after allowing for all this, it is perhaps safe to say that the machinery industry accounts directly for about a million of our unemployed, and it is said indirectly it accounts for three millions.

THE OUTLOOK

It is obvious that industry has done little in the direction of extension or plant rehabilitation since early in 1929. Depreciation and obsolescence have now been deteriorating industrial equipment for over four years. Collectively, American industry and foreign industry has accumulated a machinery deficit that involve billions, all of which leads machinery manufacturers to look forward with great optimism once the economic situation at home and abroad is righted, and economists of the League of Nations and elsewhere state that the economic corner has been turned.

During earlier years there has been much confused thinking on the general subject of the part played in Twentieth Century civilization by mechanized industry. Such matters as technological unemployment have provided targets for discussion of an unfortunate character. It is now hoped that the careful studies made by the research men in the NRA will go far toward developing the facts in this situation, toward clarifying thought, and that ultimately a point will be reached where each industry as well as the nation generally will have an adequate and definite equipment policy for industry.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Allied Building Metals Industries, 320 Fifth Ave., New York City.

American Ceramic Society, 2525 N. High St., Columbus, O.

American Concrete Institute, 7400 Second Blvd., Detroit, Mich.

American Construction Council, 28 W. 44th St., New York City.

American Foundrymen's Assn., 222 W. Adams St., Chicago, Ill.

American Institute of Chemical Engineers, Bellevue Court Building, Philadelphia, Pa.

American Institute of Electrical Engineers, 33 W. 39th St., New York City.

American Institute of Mining and Metallurgical Engineers, 29 W. 39th St., New York City.

American Iron and Steel Institute, 350 Fifth Ave., New York City.

American Petroleum Institute, 250 Park Ave., New York City.

American Railway Engineering Assn., 431 S. Dearborn St., Chicago, Ill.

American Road Builders Assn., Press Bldg., Washington, D. C.

American Society of Civil Engineers, 33 W. 39th St., New York City.

American Society of Heating and Ventilating Engineers, 51 Madison Ave., New York City.

American Society of Mechanical Engineers, 29 W. 39th St., New York City.

American Society of Municipal Engineers, 4359 Lindell Bld., St. Louis, Mo.

American Society of Naval Engineers, Navy Department, Washington, D. C.

American Society of Refrigerating Engineers, 37 W. 39th St., New York City.

American Society of Safety Engineers, 25 W. 39th St., New York City.

American Society for Steel Treating, 7015 Euclid Ave., Cleveland, O.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa.

American Standards Assn., 29 W. 39th St., New York City.

American Statistical Assn., 114 Woodward Bldg., Washington, D. C.

American Water Works Assn., 29 West 39th St., New York City.

National Aeronautic Assn., 1623 H St., N. W., Washington, D. C.

National Board of Fire Underwriters, 85 John St., New York City.

National Fire Protection Assn., Boston, Mass.

National State Assn., 644 Drexel Bldg., Philadelphia, Pa.

New York Electrical Society, 29 W. 39th St., New York City.

Society of Automotive Engineers, Inc., 29 W. 39th St., New York City.

Society of Naval Architects and Marine Engineers, 29 W. 39th St., New York City.

Society for Promotion of Engineering Education, Univ. of Pittsburgh, Pittsburgh, Pa.

DIVISION XX

GEOPHYSICAL SCIENCES

DYNAMIC AND STRUCTURAL GEOLOGY

By Kirtley F. Mather

Professor, Harvard University

INTERNATIONAL GEOLOGICAL CONGRESS

Meeting in Washington.—During July and August, 1933, the geologists of the United States were hosts for the International Geological Congress which met in this country for the first time since 1891. The last previous meeting of the Congress was in Spain in 1929 and the next meeting will probably be held in the Soviet Union in 1936. Sessions for the reading of technical papers were held in Washington, July 22-29; these were preceded and followed by excursions to localities of geological interest throughout the entire United States.

Map and Guidebooks.—For the purposes of the Congress, the U. S. Geological Survey issued a geologic map of the United States on the scale of 1:2,500,000, which sets a new standard for accurate detail and cartographic representation of the geologic features of so large an area. The Government Printing Office issued a series of thirty-one guidebooks, prepared under the auspices of the Survey and subsidized in part by a grant from the Penrose Fund of the Geological Society of America. These guidebooks describe the features of the numerous localities visited during the excursions, scattered from New England to California and comprise an outstanding contribution to the elucidation of the dynamic and structural geology of the country as well as an introduction to the geology of mining districts, oil fields and other econom deposits which have made possib much of the industrial development the United States.

STRUCTURAL GEOLOGY

Depths of the Earth.—In his pre dential address before the Geologic Society of America in December, 19 R. A. Daly emphasized the need seeking in the shells and the core the earth the explanation for the di matic changes registered in its reli and visible rocks (*Bull. Geol. S Am.*, Vol. 44, pp. 243-264, 1933). expressed the belief that "our plan is still too hot to crystallize at a depth greater than about fifty miles

Sea Studies.—The American Ge physical Union's Committee on t geophysical and geological study oceanic basins, under the chairma ship of R. M. Field, reported in Ap that the structural studies which it promoting give promise of securi valuable information concerning t three-fourths of the earth's outer sh which is covered by the sea. Geophy cal methods which have hitherto be used only in land areas are bei adapted successfully for work sea.

Seismic Waves.—From his stud of the transmission of seismic wav Frank Neumann (*Trans. Am. Ge physical Union*, 14th ann. meetin pp. 329-335, 1933) suggests that t various shells of the earth's interi may be much more sharply defined a more constant in physical characteristics than now generally conceded by seismologists. "The sphere outside the accepted 1200-km. discontinuity may consist of two and probably three shells (excluding surface layers) of sharply different physical nature."

Continental Subsidence and Uplift.—The perennial question of recent changes of level along the Atlantic seaboard was considered anew at the Atlantic City meeting of the American Association for the Advancement of Science. W. F. Cheney reported (*Bull. Geol. Soc. America,* Vol. 44, pp. 174-5, 1933) a statistical investigation of over 1,500,000 readings of tide gauges covering intervals of 10 to 39 years at nine stations from Portland, Me., to Key West, Fla. These indicate uplift of the land at Portland at a rate of about seven inches per century, sinking from Boston to Baltimore at rates of three to eleven inches per century and uplift of the Carolina coast and of northern Florida at somewhat similar rates. B. Gutenberg reported (*Jour. Geology,* Vol. 41, pp. 449-467, 1933) that the region of the Great Lakes is undergoing an upward tilt toward the north at a rate of about 10 cm. per 100 km. per century. It is very probable that this tilt is due to forces which tend to restore isostatic equilibrium, disturbed by the melting of ice after the Ice Age.

Mississippi Valley.—The Kentland area of disturbed Ordovician rocks in northwestern Indiana has long been a puzzling feature among the flat-lying strata of the interior plains. R. R. Shrock and C. A. Malott have recently completed a detailed study of the mosaic fault blocks which have there been lifted 1,500 feet vertically in relation to surrounding rocks (*Jour. Geology,* Vol. 41, pp. 337-370, 1933). They conclude that the conditions are most probably a result of cryptovolcanic activity. The continental margin at the Texas-Louisiana Gulf Coast has been critically considered by Donald C. Barton and Maude Hickey (*Trans. Am. Geophysical Union,* 14th ann. meeting, pp. 16-20, 1933) in the light of data secured by geophysical surveys and in drilling operations. They conclude that these data are most satisfactorily explained by postulating the presence of a geosyncline trending east and west along the coast with an increase of density gulfward in the basement rocks.

Canadian Shield.—Carl A. Lamey reports (*Jour. Geology,* Vol. 41, pp. 487-500, 1933) that a large area of pre-Cambrian rocks, the Republic granite, in northern Michigan, previously designated as Archean, is a post-Huronian, possibly Killarney, intrusive.

Rocky Mountain Region.—Members of the geological departments of Princeton, Chicago and Cincinnati have been coöperating in the prosecution of an unusually thorough project in structural research in the Beartooth-Bighorn region of Montana and Wyoming. Fundamental problems of mountain building have been attacked from all angles—stratigraphic, physiographic and geophysical as well as tectonic. Many geologists from other institutions, including the Federal and State Surveys, have participated in the work. Preliminary statements of the results have been made at various times during the year (Bucher, Chamberlin and Thom, *Bull. Am. Assoc. Petroleum Geologists,* Vol. 17, pp. 680-693, 1933). The individual structural features of the region are characteristically the products of basement block or wedge elevation, or rotation under regionally applied compression, rather than the products of simple folding under tangential compression. Gravity anomalies seem to be correlated closely with the estimated depth to the base of the Cambrian.

DYNAMIC GEOLOGY

Neo-catastrophism.—As a by-product of this research in the Beartooth-Bighorn region, W. H. Bucher has suggested (*Trans. Am. Geophysical Union,* 14th ann. meeting, pp. 238 242, 1933) the possibility that a large volcanic explosion moved the thrust-masses of the Heart Mountain region from an original position farther west to their present positions. The dynamics would be comparable to that which caused the overthrust on the borders of the Ries Basin in southern Germany where recent measurements with the torsion-balance seem to indicate an explosion funnel eight miles in diameter and nearly a mile deep. A somewhat similar appeal to catastrophe was made by F. A. Melton and W. Schriever (*Jour. Geology,* Vol. 41, pp. 52-66, 1933) in their suggestion at the annual meeting of the Geological Society of America that the so-called "Carolina bays" may be meteorite scars.

Salt Domes.—Opinion concerning the mechanics of formation of salt domes is approaching a large measure of agreement and has been well summarized by D. C. Barton (*Bull. Am. Assoc. Petroleum Geologists,* Vol. 17, pp. 1025-1083, 1933). The Gulf Coast salt domes of Texas and Louisiana are the result of plastic flowage of sedimentary salt intrusively into the overlying sediments. The motive force has been the static weight of the sediments. The deeper the dome the older was the time of cessation of growth.

Active Fault.—Current movement on an active thrust fault in the Buena Vista Hills Oil Field, California, has been detected and analyzed by F. W. Koch (*Bull. Am. Assoc. Petroleum Geologists,* Vol. 17, pp. 694-712, 1933) who computes from measurements on bent pipe lines and collapsed well casings that the override block is moving southward at a minimum average rate of 1½ inches per year. The fault probably is the result of differential slipping between beds on the north flank of the structure induced by cu rent folding.

Marine Erosion. — Four epochs sea rise and abrasional advance, alte nating with three epochs of sea lowe ing and withdrawal, have been d scribed by W. M. Davis (*Bull. Ge Soc. America,* Vol. 44, pp. 1041-11 1933) as a result of physiograph studies in the Santa Monica Mou tains, California. These seven epoc of high and low sea level are inte preted as representing the last fo Nonglacial Epochs (including t present Postglacial) and the last thr Glacial Epochs of the Quaterna Glacial Period.

Rock Units.—Rules for the classi cation and nomenclature of rock uni which set the standard for geologic description for all up-to-date geol gists, have been published (*Bull. Ge Soc. America,* Vol. 44, pp. 423-45 1933) by a committee representing t Association of American State Geol gists, the U. S. Geological Survey, t American Association of Petroleu Geologists and the Geological Socie of America.

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EARTHQUAKES AND VOLCANOES

BY L. DON LEET

SEISMOLOGIST IN CHARGE, HARVARD SEISMOGRAPH STATION

EARTHQUAKES

California.—Approximately 130 were reported killed, 5,000 injured, and property damaged to the extent of about $50,000,000 in the vicinity of Long Beach and Los Angeles by an earthquake at about 5:55 p. m. Pacific Standard Time on March 10th. The origin of the quake has been computed by the Seismological Laboratories at Pasadena as about six mil deep and near 33° 34.5′ North La tude, 117° 59′ West Longitude, point a short distance off the coa between the towns of Huntingt Beach and Newport Beach. The ma earthquake was preceded by a sm foreshock at 1:13 a. m. on March 9t sharply felt at Huntington Beach, a followed by hundreds of aftershock the largest of which was not more than one twenty-fifth as severe as the main shock. The Seismological Laboratories at Pasadena report: "Damage was most extensive at Long Beach, which happened to be the largest center of population near the origin. Apparently stronger shaking at certain points where considerable destruction occurred was very probably due to the water-soaked alluvial character of the ground. At all points, spectacular damage was confined almost wholly to bad or improperly designed construction." Los Angeles authorities stated that all principal buildings in the city had come through without having shown any serious damage or major structural defects. As earthquakes go, this was not a major shock, its energy being considerably less, for example, than that of the Nevada quake of Dec. 20, 1932, and only a small fraction of that of a catastrophe in Japan March 3d. The intensity of local shaking was, in fact, probably less than that of the Santa Barbara earthquake of June 29, 1925. The property damage and loss of life are attributable to the more thickly settled character of the strongly shaken area.

Northeast Region.—The activity in this region was limited to small local shocks reported as follows: Dec. 6th, 1932, Tupper Lake, N. Y. two shocks; Jan. 17th, Fall River, Mass.; Oct. 14th, Laconia, N. H.

Central and Western Mountain Regions.—Dec. 20, 1932, the Dixie Valley section of Nevada reported a series of six severe shocks. These were followed by 158 aftershocks between that date and Jan. 13th. The principle quake of this series was more severe than the Long Beach quake of March 10th in California. Other shocks in these regions were reported as follows: May 4th, Helena, Mont.; May 28th, Maysville, Ky.; June 9th, Eatonton, Ga.; Aug. 19th, Bozeman, Mont.

Pacific Coast Region.—Here, as in any relatively active seismic region, it is not feasible to attempt to list more than the few quakes which are outstanding by reason of having been felt by a large number of people. Some idea of the proportion of felt quakes to those which are unfelt and registered by instruments only may be given by a report of the Seismological Laboratories of Pasadena for August, listing 143 shocks of which only one was noted as having been felt. Aside from the hundred of aftershocks following the Long Beach quake, the ones of chief interest in this region were reported as follows: Jan. 21st, Calexico; March 27th, Big Creek; May 16th, San Francisco (two sharp); June 3d, San Francisco; June 22d, Fresno; June 25th, Sacramento; Aug. 10th, San Francisco; Oct. 24th, San Francisco; Oct. 31st, San Bernardino; Nov. 3d, San Francisco.

Alaska.—A number of the quakes reported from Alaska during the year were apparently associated with several renewals of volcanic activity reported below. Shocks were reported as follows: Jan. 3d, Anchorage; April 26th, Anchorage and Dutch Harbor; June 13th-15th, Seward and Anchorage; June 29th and July 28th, Dutch Harbor; Sept. 19th, Juneau.

VOLCANOES

Hawaii.—The close of 1932 and beginning of 1933 were marked by signs which were interpreted by experts at Hawaii as presaging a renewal of activity in Kilauea.

Alaska.—April 28th unconfirmed reports stated that Augustus Island at the mouth of Cook Inlet, 160 miles south of Anchorage, had blown up, and on May 13th Mt. Illiamna and an unnamed long-dormant peak west of Tyonek were reported active. May 23d Mt. Redoubt, 50 miles southwest of Anchorage, was reported active after being dormant for years. Sept. 20th-25th hunters 175 miles northwest of Anchorage, Alaska, reported a series of frequent quakes accompanied by thunderous roars and booming explosions, interpreted as concommitants of volcanic eruptions in the vicinity.

California.—July 1st-4th, 17 quakes in the vicinity of Lassen Peak, Calif., were regarded as indications of lava movements under the volcano.

RESEARCH

For the first time in the history of earthquake study, the acceleration of a destructive shock was measured at a

distance of seventeen miles from the point of origin, in the case of the Long Beach, Calif., quake of March 10th. Just a short time before that quake the U. S. Coast and Geodetic Survey section of seismology had completed the installation of new accelerographs at Long Beach, Vernon, and Los Angeles. The records obtain
there are discussed in the *Engineeri*
News-Record of June 22, 1933. Th
show, among other things, that
maximum acceleration at Long Bea
was over .25 of gravity, a figure mu
greater than any regarded in the p
as likely for such a quake.

ECONOMIC GEOLOGY

By D. F. Hewett

U. S. Geological Survey, Department of the Interior

WESTERN ORE DEPOSITS

With the appearance of *Ore Deposits of the Western States,* published by the American Institute of Mining and Metallurgical Engineers, there comes to fruition an interesting coöperative effort to honor a great geologist, Waldemar Lindgren. As he approached retirement from his position as head of the Department of Geology of the Massachusetts Institute of Technology the idea took form that it would be appropriate for his friends and associates to publish a summary of the ore deposits of western United States, the world's outstanding source of most of the non-ferrous metals, to the study of which he had devoted his life. All of the 41 authors and six editors have come under the influence of either Lindgren's personal guidance or his writings. Although the editors did not attempt to encourage a comprehensive treatment of the entire subject of ore deposits, the great number, magnitude and diversity of those deposits in our western region have served to produce essentially that result. Probably the time has passed in this as in many other scientific subjects when one man can adequately assemble, review, and digest the data necessary to a comprehensive summary of the processes revealed in such a large region. The present volume presents summaries of the relations of the ore deposits to the stratigraphy, structure, and igneous rocks of the region; comprehensive reviews of the outstanding processes that are displayed and, under a genetic system of classification brief summaries of many of the separate districts. For a decade or more the v
ume will serve as the principal ref
ence book for students of the subj
as well as those that are engaged in
ploiting the ore deposits of the regi

PORPHYRY COPPERS

The same society also publis
during the year an interesting volu
The Porphyry Coppers, which conta
a detailed history of the developm
of the outstanding ten low grade
posits in the United States and
in Chile. The volume is largely
voted to the history of the techni
development of the mining and me
lurgical works but it reveals much
the geologic environment under wh
the deposits are found. Most of th
mines early exploited ores that c
tained from 2 to 3 per cent coppe
part of which represented surficial
richment, but with improvement
technique, some have recently trea
large tonnage of unenriched sulph
material containing from 1 to 1
per cent copper. As a result, the
serves are now reckoned in enorm
tonnages and the life of the mine
extended many years.

METALLIFEROUS DEPOSITS

Among the papers that record
trend of constructive thought in b
problems of metalliferous depos
two deserve mention.* Butler attem

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* Butler, B. S., "Ore Deposits of
United States in Their Relation to Geol
Cycles," *Econ. Geol.* Vol. 28, pp. 301-
1933.

Graton, L. C., "The Depth Zones in
Depositions," *Econ. Geol.* Vol. 28, pp.
555, 1933.

to show that at four epochs in the geologic history of North America, Pre-Cambrian, Paleozoic, late Jurassic and Tertiary, there have been somewhat similar cycles of igneous history, metalliferous sedimentation and hydrothermal ore deposition. Graton, after an examination of the twenty deepest mines of the world and consideration of the persistence of the metals in the deposits, concludes that minerals earlier recognized as characteristic of three depth zones, persist deeper into the crust than was recently assumed. He also proposes the recognition of five zones that reflect the physical conditions at the time of formation. Both of these papers have important bearing upon the practical problems that enter into decisions concerning the favorable regions to explore and the advisability of explorations in depth.

The year has brought forth slightly less than the usual number of state geological survey reports due to the failure of state fiscal support. It is noteworthy that the states are devoting increasing attention to problems of water supply and sources of the non-metallic elements.

INTERNATIONAL GEOLOGICAL CONGRESS

In July, 1933, the 16th International Geological Congress was held in Washington and about 750 geologists from most of the countries of the world attended the sessions. One of the seven topics chosen for discussion included zonal relations of metalliferous deposits. The Congress will publish a volume on the Copper Resources of the World that will be authoritative for a decade or more.

OIL FIELD DEVELOPMENT

The bulletin of the American Association of Petroleum Geologists is the principal source of information concerning the geologic aspects of oil field development in the United States. To an increasing degree it is publishing comprehensive studies of regional stratigraphy and structure both closely and even remotely bearing upon prospective oil-bearing territory. The April bulletin contained seven papers that made up a symposium on the stratigraphy of Colorado. More papers record the studies of foreign regions that may be sources of petroleum. Broadly, the papers reveal increasingly detailed studies of the sediments penetrated by drills, their content of micro-organisms and any other features that aid local or regional correlation of the beds, as this is the background through which determinations of structure must be made. During the year, there appeared the best summary of the geology of California* extant. The author is chief geologist of the Texas Company, and most of the information in the book is the by-product of studies in search of oil fields or in oil field development. Although it does not deal primarily with oil field geology, it is essential to such studies.

ECONOMIC GEOGRAPHY

By Helen M. Strong

United States Coast and Geodetic Survey

PUBLICATIONS AND RESEARCH

A book of preeminent worth in the field of economic geography appeared during the closing months of 1933. *Economic and Social Geography* by Ellsworth Huntington of Yale University, Frank E. Williams of the University of Pennsylvania and Samuel van Valkenburg of Clark University presents a logical thread of geographic reasoning. It procedes from a discussion of major geographic factors in the natural environment, to a description of natural regions, and closes with an analysis of the relation of these to production and distribution of the world's great commodities.

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* Reed, R. D., "Geology of California," *Amer. Assoc. Pet. Geol.*, pp. 355, 1933.

Research and field studies in economic geography are extending along lines closely connected with industry, agriculture, and business. These provide a background showing how the physical environment vitally influences practically every industrial, agricultural or business enterprise. These studies reveal the natural resources of regions and countries. They deal for the most part with regions. These are areas within a country, or extending into more than one country, where similar natural conditions such as climate, soil, and land surface form a unit which is contrasted in its physical environment with surrounding areas. Such studies afford an organized analysis of physical conditions which are encountered by business activities within the region. Economic Geography during the past year has continued its series on agricultural regions, that on North America by Oliver E. Baker, and the one on South America by Samuel van Valkenburg.

FIELD ACTIVITIES

Various areas of North America have attracted the field activities of American geographers. Ralph H. Brown of the University of Minnesota has studied the Sun River Irrigation project in Montana, while Samuel Dicken of the same faculty has worked on an area on the plateau of northeastern Mexico. Ben F. Lemmert of Duke University has made a geographic analysis of the Cotton Textile Industry of the Southern Appalachian Piedmont. K. C. McMurry of the University of Michigan has continued his geographic investigations into the use of land in Michigan. This includes a "Lake Inventory" which presents and analyzes conditions on the lake margin as well as in the lake itself. Robert S. Platt of the University of Chicago has crystallized his field work in the Michigan copper country into two studies: "Copper Mining Terrene Occupancy, Keewenaw Peninsula", and "South Range, Keewenaw Copper Country: a mining pattern of land occupancy." In addition to field studies in North America, Dr. Platt has worked extensively in South America, the latest products of these surveys on the ground and fro the air are "Six Farms in the Centr Andes" and "Mining Patterns of O cupancy in Five South American Di tricts." With V. C. Finch of th University of Wisconsin he also ha prepared the bulletin on "Geograph Surveys" published by the Geograp ic Society of Chicago.

The philosophical and definitive a alysis of *Centrifugal and Centripet Forces in Urban Geography* Charles C. Colby of the University Chicago presents conclusions of bas importance to those charged with r sponsibility for urban problems, b cause the flow of population and i dustry toward or away from the citi requires careful interpretation in co nection with constructive procedur The same author has also publish two discussions describing methods importance to those doing field wo in economic geography: "An agr cultural Traverse of the Ontario Pe insula", and the "Railway Traver as an aid to Reconnaissance". Griffi Taylor, also of Chicago, has issu several papers, among them bein "Pioneer Belts in Australia" ar "Soils of Australia in Relation Topography and Climate." Wellingt D. Jones prepared "Present Stat and Future Possibilities of Agricu tural Land Utilization in Patagonia for *Pioneer Settlement,* a special pu lication of the American Geographic Society, and is co-author with Derwe Whittlesey of Harvard University, *Nomadic Herding Regions.* H. Leppard has published the *Agricu ture of the Peace River Frontier.*

Stanley Dodge of the University Michigan has made studies of di tribution and population, includin one on world population.

Other field studies for areas outsi the United States have been carri on by several geographers. Glenn Trewartha of the University of Wi consin has completed preparation a *Reconnaissance Geography of Japa* John Orchard of Columbia Universi has published *Prerequisites of Japa ese Security,* and *Economic Cons quences of Japan's Asiatic Polic* From Robert Burnett Hall of the Un versity of Michigan has come *La*

Forms of Japan, while D. H. Davis of the University of Minnesota has written the *Japanese Occupation of the Hokkaido*. Preston James of the University of Michigan, whose special field of interest is Latin America, has contributed a discussion on Brazil.

Studies of air and weather over the North Atlantic by Col. and Mrs. Lindbergh are basic contributions in economic geography.

The United States Coast and Geodetic Survey has been directed to extend its control net of triangulation and precise levels through the Tennessee Valley in order to provide the essential framework for engineering activities and economic planning in this area. The program also calls for extension and amplification of the control net in every state, because many of the places for which exact geographic positions and azimuths are known are situated too far apart to give the road, irrigation, or other construction engineers the requisite data. These activities carried on by the Civil Works Administration through their state officials have put thousands of men to work. They are under the direct supervision of local engineers working under general supervision of the Coast and Geodetic Survey. Thus the foundation is being laid for agricultural planning, subsistance homestead development, and many other economic and engineering activities. In connection with the hydrographic work of the Coast and Geodetic Survey, aerial photographs are being used to obtain aerial topographic map information of the coastal region adjacent to water areas in which sounding parties are engaged. The area thus covered is limited by that essential for compilation of the nautical chart.

TOPOGRAPHIC QUADRANGLE SHEETS

After the control net is established, the Geological Survey has been instructed to prepare topographic quadrangle sheets, most of them on the scale of one inch to the mile. There will be several hundred of these new sheets presenting in detail topographic data essential to any planned development in an area. This work was much needed, because only about 38 per cent of the United States is now covered by actual topographic maps, so essential for road construction and many other engineering activities. Engineers often have been compelled at unduly great expense to make limited surveys connected with a particular project in order to picture the terraine over which they were operating. Because these local surveys were not connected with other areas they unavoidably contained errors, and considerable work had to be done over in later years, when a complete topographic picture of the region became available. The Geological Survey also is publishing several maps of the coal regions of Kentucky and West Virginia, the oil fields of Oklahoma and Texas, and a number of quadrangle sheets in the mining areas of Colorado, Idaho, Nevada, and Montana.

AIR NAVIGATION MAPS

The American Geographical Society has studied air navigation maps with a view to improvement in existing style, and as the result produced an experimental map. They also have published several new sheets of the millionth map of Hispanic America, valuable source material for the economic geographer.

MINERALOGY AND PETROGRAPHY

BY CLIFFORD FRONDEL

MEMBER, MINERALOGICAL SOCIETY OF AMERICA

MINERALOGY

X-ray Investigations.—The lattice structures of a large number of minerals have been investigated by various x-ray techniques in the course of the year. Notable researches have been made on the members of the *sodalite-noselite-hauynite* family, on *natrolite, mesolite,* and other zeolites, and on the clay minerals *kaolinite* and *dickite.* *X*-ray data have also served to show the distinctness of the iron aluminum silicate minerals *thuringite* and *chamosite.* New analyses for these two substances yield exceedingly complex formulas. Interesting research work has been done at Columbia University during the course of the year showing the application of *x*-ray diffraction data as criteria for the identification of jade in carven objects. The method allows a ready separation to be made between *jadeite* and *nephrite, agalmatolite, vesuvianite,* or other minerals which simulate jade. The material studied was obtained from the collection of the Metropolitan Museum of Art (N. Y.).

International Geological Congress.—The work of the 16th International Geological Congress, which met in Washington during the summer, is described elsewhere. In connection with the Congress a set of 30 guidebooks, describing the major points of interest to geologists and mineralogists in the United States, was published under the auspices of the U. S. Geological Survey. Of particular interest to mineralogists are the guidebooks relating to New York City and vicinity (No. 9), which contain papers dealing with the mineralogy of the zeolite occurrences in the New Jersey diabase region, the pegmatite at Bedford, N. Y., and the zinc deposit at Franklin, N. J., and Guidebook 2 (*Mining Districts of the Eastern States*) which describes the mineralogy of such occurrences as Magnet Cove, Ark., and the fluorite, galena, and bauxite deposits of the Mississippi Valley region.

New Books.—A new revised and enlarged edition of Max Bauer's *Edelsteinkunde* has been prepared by Prof. K. Schlossmacher. Earlier editions of this widely known and authoritive work on gems were issued by Prof. Bauer in 1896 and 1901. The properties, occurrences, and uses of the gem minerals and the organic gems—pearl, amber, coral, etc.—are described in much detail. Synthetic and artificial gems and the art of gem cutting are also given extensive treatment. A description is given of the scientific apparatus used in the determination of gem materials and complete determinative tables are included. In *Kristallometrische Determineerings-Methoden* J. H. Haan (178 pp.) Haan has laboriously tabulated and classified the goniometric constants of approximately 1,000 chemical compounds for purposes of identification. Systems of classification for this purpose were proposed by Frankenheim (1842), Fedorov (1920), Goldschmidt (1906), Barker (1930) and others. Haan concludes that Barker's system is very satisfactory and follows it throughout. The geometric properties of about 8,000 compounds are now known and the present descriptions are intended as a beginning of a complete systematic catalogue of all measured crystals. A similar determinative scheme based on unit cell dimensions obtained by *x*-ray analysis will no doubt be some day prepared.

Necrology.—The science of mineralogy suffered severe loss with the death of Victor Goldschmidt and Friedrich Rinne, mineralogist and authority on crystal structure. Dr. Goldschmidt was the foremost crystallographer of our times; his contributions to mineralogy include the development of the gnomonic projection as a crystallographic method, the discovery of the "Law of Harmonic Complication" in crystallogeny and its extension to other fields of science, and his *Atlas.* Dr. Frank R. Van Horn, for many years Secretary of the Mineralogical Society of America, also died during 1933.

NEW MINERALS

Corvusite.—A widely distributed but hitherto undescribed vanadium mineral was found in the carnotite-bearing sandstones of Colorado and Utah associated with *fervanite, roscoelite,* and *psilomelane.* No satisfactory chemical formula could be derived owing to the impure nature of the material but it is essentially composed of vanadium oxides with water. It is named from the Latin word for raven (*corvus*) in allusion to the purple-black color of the mineral.

Rilandite.—A second new mineral from the carnotite region of Colorado was found in considerable amounts in the Morrison formation at Meeker. In composition *rilandite* consists largely of chromium, silica, alumina, and water but the analysis can not be reduced to a simple formula. The occurrence of chromium in this way is quite unusual.

Ashcroftine.—A complex hydrous silicate of potassium, sodium, calcium, and aluminum is from Narsarsuk, Greenland; it differs from the related mineral *thompsonite* in having a high potash and water content. *Ashcroftine* forms needle-like tetragonal crystals with two good cleavages.

Brickerite.—A preliminary announcement has been made of a new arsenate of zinc and calcium from the Lomitos Mine, Chijmuni, Bolivia. It is described as forming white radially fibrous crusts similar to wavellite; crystallization unknown but biaxial with high indices.

Duparcite.—A silicate of aluminum and calcium forming elongated tetragonal crystals; it differs from vesuvianite only in several minor respects. It is found in the aphanites of Azegour, Morocco. The name is in honor of the Swiss geologist, Prof. Duparc, recently deceased. *Duparcite* is probably identical with the mineral *genevite* described a few years ago from the same locality by Duparc himself.

Enalite.—Found as orange-yellow tetragonal crystals associated with *cassiterite* and *monazite* in detrital sands at Naegi, Gifu Prefecture, Japan. Chemically enalite is a hydrous silicate of thorium and uranium; it seems to be related to the mineral *thorite,* variety *orangite,* and further examination may show its identity with that mineral.

Harbortite. — Described as a hydrous phosphate of aluminum from Maranhao, North Brazil, where it is found in a laterite deposit containing bauxite. The *harbortite* was formed by the action of phosphate solutions on the bauxite. Octahedral crystals, possibly pseudomorphs after pyrite, were observed.

Kolbeckine.—A not well defined new tin mineral from the Maria Teresa Mine, Huari, Bolivia. Analysis indicates, after correcting for admixed pyrite, that it is a sulphide of tin (stannous-stannic sulphide). It may prove to be simply stannous sulphide. The name has an unfortunate similarity to the different mineral *kolbeckite.*

Magnesiosussexite.—A new basic borate of magnesium and manganese found occurring in veinlets in massive hematite at a Michigan iron mine. A comparison of the physical properties, chemical composition and *x*-ray data with *sussexite* and *camsellite* indicates that it is a member of an isomorphous series with these minerals.

Portlandite. — A brucite-like mineral with the composition of calcium hydroxide. It occurs in a contact metamorphic deposit between dolerite and chalk at Scawt Hill, Co. Antrim, Ireland, where it is associated with the rare minerals *spurrite* and *larnite.* *Portlandite* is identical in optical properties with the artificial material studied in connection with Portland cement.

Valleriite.—A soft black graphite-like sulphide of copper and iron forming hexagonal or pseudo-hexagonal crystals. It is found as grains with a concentric structure or as felted aggregates in a carbonate rock at Kaveltorp, Sweden; also observed with *chalcopyrite* and *pentlandite* in certain basic rocks of the Bushveld Complex in South Africa.

Vandenbrandite.—Found in a newly discovered uranium deposit at Kalongive in the Belgian Congo where it is associated with *pitchblende, chalcopyrite,* and various secondary copper and uranium minerals. In composition it is a hydrous uranate of copper; crystallization triclinic, color, dark green to black. Named after the discoverer, P. Van der Brande.

Un-named.—A new barium-containing feldspar has been described from aplite dikes in the Broken Hill district, New South Wales. Optically this material belongs to a plagioclase towards the basic end of the series.

NEW MINERAL LOCALITIES

The recently described and hitherto rare mineral *clinoptilolite* has been identified as a common constituent of altered pyroclastic rocks in the Miocene strata of California. It probably represents an intermediate stage in the alteration of alkalic volcanic material to the commercially valuable rock bentonite. The mineral *serendibite*, previously known only from Ceylon, has been found forming a large deposit at Johnsburg, Warren Co., N. Y. It occurs at an intrusive contact in Grenville limestone associated with *diopside, phlogopite,* and *scapolite.* The first occurrence of *bavenite* in the United States has been described from a pegmatite at Mesa Grande, California, where it occurs as a pseudomorph after *beryl.*

PETROGRAPHY

New Books.—*Descriptive Petrography of the Igneous Rocks*: Vol. 2, *The Quartz-Bearing Rocks*, by Prof. Albert Johannsen (Chicago), 428 pp. The first volume of this work, dealing with general principles, was noticed in THE AMERICAN YEAR BOOK for 1932. The present volume gives a brief but adequate description of all quartz-bearing igneous rocks between the extremes of silexite and quartz-gabbro. The quantitative mineral composition and chemical analyses for all rocks for which data are available are cited, and a historical treatment, with a rather full literature, is also included. In addition to the purely descriptive portions of the work passing discussions are given of the weathering of rocks and of such features as orbicular and rapakavi structure. The quantitative classification used by Johannsen fits the Rosenbusch classification closely, and a person familiar with the latter will find no confusion in using the new system. A minimum of new names are introduced, and this is fortunate for a field already over-burdened by a conflicting nomenclature.

TERRESTRIAL MAGNETISM AND ELECTRICITY

BY JOHN A. FLEMING

CARNEGIE INSTITUTION OF WASHINGTON

SECOND INTERNATIONAL POLAR YEAR 1932-33

The observational program of the Second International Polar Year was realized in North America and South America as well as throughout the world despite the continuation of the unfavorable economic conditions. The comprehensive program of the United States Polar Year Station, College-Fairbanks (Alaska), including magnetic variation and absolute measurements, earth-current records, detailed visual and photographic auroral observations, measurements of the variations in magnetic vertical-intensity by the Mitchell loop-method, atmospheric potential-gradient, air-conductivity, atmospheric ionic-content, and Aitken dust-counts, was realized in its entirety as also in part the radio measurements on the height of the ionized regions of the upper atmosphere. The less ambitious programs of the other U. S. Polar Year Station at Point Barrow (Alaska), as well as of the Canadian station at Chesterfield Inlet and of the Chilean station at Magallanes, Chile, were completed also.

The reduction and detailed discussion of the results obtained at these stations will be laborious and will require much time. Preliminary inspection of the records, especially those obtained in atmospheric electricity at College-Fairbanks, indicates a content of great geophysical interest; for example, the universal-time feature in the atmospheric potential-gradient is quite apparent. Each nation will publish the data obtained at its observatories and these then will in turn be sent to the central office of the International Polar Year Commission at Copenhagen, Denmark for assembling of particular data for many stations to be sent to investigators for the discussion of specific problems.

OBSERVATORIES AND SURVEYS

The five magnetic observatories of the U. S. Coast and Geodetic Survey at Cheltenham, Md., San Juan, Puerto Rico, Tucson, Ariz., Sitka, Alaska, and Honolulu have been operated without serious interruption and with noteworthy improvements in buildings. At the chief observatory of the United States (Cheltenham) emphasis was laid on making suitable provision for inter-comparison of instrumental standards, since this station has been designated as the one in the United States for international comparisons of magnetic standards and for testing of instruments in coöperation with the Department of Terrestrial Magnetism of the Carnegie Institution of Washington. At Tucson the additional atmospheric-electric program using equipment designed by the Department of Terrestrial Magnetism was continued as well as that in earth-currents with the coöperation of the Carnegie Institution of Washington, the American Telephone and Telegraph Company, and the Mountain States Telephone and Telegraph Company. The Coast and Geodetic Survey continued its program of occupying repeat-stations at intervals of about five years in all parts of the United States, the work being distributed through the five-year period. In 1933 this work extended from Georgia to Alabama in the south and in Washington and Oregon. Triangulation-stations, when suitable, were used and observations of declinations were made at additional stations about 50 miles apart between repeat-stations. During 1933 mimeographed publications were issued by the Survey for local use giving detailed information on magnetic declination and its changes in the states of South Carolina and Louisiana.

The work of the Carnegie Institution of Washington in terrestrial magnetism, atmospheric electricity, earth-currents and meteorology has been continued through its Department of Terrestrial Magnetism at Washington, at the Watheroo (Western Australia) and Huancayo (Peru) observatories, and in land surveys which included secular-variation observations during 1933 at repeat-stations in South America, Africa, and China. In view of the relationship which undoubtedly exists between the ionized regions of the upper atmosphere (that is, the ionosphere) and terrestrial-magnetic phenomena, apparatus for the study of the ionosphere was installed at the Institution's two observatories; with the coöperation of the United States Bureau of Standards, the Department of Terrestrial Magnetism designed and constructed the necessary equipment using the pulse-retardation method of Breit and Tuve with improvements suggested by later developments at the Bureau of Standards. The coöperation of the Carnegie Institution of Washington through its Department of Terrestrial Magnetism at the Apia Observatory (Samoa) concerned chiefly with the atmospheric-electric program was continued, and a grant was obtained from the Rockefeller Foundation to assure operation during 1933 without serious interruption of the programs of the Apia and Christchurch (New Zealand) observatories.

As a part of the extensive scientific program of the Byrd Antarctic Expedition II which sailed for Little America in September, series of intensive observations in terrestrial magnetism, in cosmic rays, and in auroras were planned, equipment was supplied, and observers were trained.

ATMOSPHERIC ELECTRICITY

Investigation of factors affecting the conductivity of the atmosphere—namely, the large ions and the rate of production of small ions—which appear to control the number of small ions in the atmosphere, was continued at the Department of Terrestrial Magnetism. For the first time, continuous registration of the numbers of large ions, small ions, and rate of production of small ions were obtained by photographic means at Washington, D. C. The discussion of the data resulting from these records indicates that a knowledge of the large-ion content of the atmosphere is important to an understanding of the phenomena of atmospheric electricity.

AURORAS

Auroral observations have been made and photographs taken for determining their heights at the Polar Year stations in Alaska and Canada. The auroral work of the Alaska Agricultural College and School of Mines at College was continued. The proximity of the Polar Year Station College-Fairbanks offered a fine opportunity of making a close comparison of auroral displays with magnetic and earth-current results. Auroral observations by observers of the United States Weather Bureau were made also to the extent possible because of the limited displays at each station at Nome (Alaska) and at a considerable number of Bureau stations in northern United States.

COSMIC RAYS

A special committee of the Carnegie Institution of Washington appointed in December, 1932, to consider coordination of continued support by the Institution for research in cosmic rays, held conferences with Drs. A. H. Compton and R. A. Millikan, research associates of the Institution, and other interested investigators who had submitted proposals for research. In January, 1933, a report was submitted regarding desirable procedure. It was agreed that what may be termed "geographical reconnaissance in cosmic-ray research" has yielded profitable results but that now the principal need is for more precise and continuous series of records at six or eight selected stations, well distributed both as regards latitude and longitude, so that continuous and simultaneous data over rather long periods may be available for careful analyses from the statistical viewpoint. Following this report, special cosmic-ray meters for use at fixed stations were designed and construction was begun on a number of meters, two being completed and in test by the end of the year.

Dr. A. H. Compton of the University of Chicago, as research associate of the Carnegie Institution of Washington, undertook work centered about four main projects, namely: (1) Continuation of the world-surveys of the intensity of cosmic rays, which were begun with the help of a grant from the Carnegie Institution in 1931; (2) measurements of relative intensities of cosmic rays coming from different directions at various latitudes and altitudes; (3) measurements of cosmic rays in the stratosphere using a Piccard balloon in the flight from Akron in November, 1933; and (4) the design and construction of precision recording cosmic-ray meters suitable for making continuous records at widely distributed stations (see preceding paragraph).

Dr. R. A. Millikan with associates of the California Institute of Technology, also a research associate of the Carnegie Institution of Washington, obtained very accurate upper-air data up to 22,000 feet in airplane-flights using vibration-free self-recording instruments in five localities, namely, Manitoba, Spokane, Riverside (California), Panama, and Arequipa. At 22,000 feet, a 40 per cent higher intensity was found at Manitoba and Spokane than at Panama and Arequipa, and a 11 per cent higher intensity at Spokane than at Riverside. Drs. Millikan and Bowen also obtained cosmic-ray intensities in the stratosphere by sending up recording instruments to altitudes as high as those reached thus far by instruments carrying electroscopes, that is, altitudes at which, according to the Weather Bureau and official weather-reports, the barometric pressure had fallen to 16 mm of mercury; no good cosmic-ray readings were obtained, however, at pressures lower than 60 mm of mercury. Two successful flights, which checked well in establishing intensities at these high altitudes, in connection with the work of Regener made during the year in Europe indicate that the total energy entering the Earth in the form of cosmic rays is approximately one-half the total energy coming in from the stars. In the Normal Bridge Laboratory at Pasadena, Dr. C. D. Anderson and associates continued measurements on the energy of cosmic rays. From these measurements the existence of the positive electron of the same mass as the negative electron resulting from the encounter of the incoming cosmic rays with the nuclei of atoms was shown, and Dr. Anderson's results were published in full in March 1933—the same month in which publication of confirmation of these results was made by P. M. S. Blackett and G. P. Occhialini of the Cavendish Laboratory. Work is being carried on at the Norman Bridge Laboratory on the nuclear absorption of cosmic rays, as also investigations of cosmic-ray showers and cosmic-ray bursts.

The Institution's committee also provided funds to aid the researches of Dr. Thomas H. Johnson of the Bartol Research Foundation, who found as a result of series of observations executed in Mexico, in the Canal Zone, and in Peru, that the intensity at low latitudes is greater from the westerly azimuth, indicating that the effects recorded are due to positively charged particles, bearing out tentative results previously obtained by Dr. Johnson at Mount Washington.

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

Of importance to research in terrestrial magnetism and electricity as well as geophysics in general in the western hemisphere were the deliberations of the Fifth (triennial) General Assembly of the International Union of Geodesy and Geophysics at Lisbon, Portugal, during September. This Union's purpose is to promote the study of geophysical problems, to initiate and to organize the conduct of researches which depend on the coöperation of different countries, and to provide for their discussion and publication. At the meetings of the Association of Terrestrial Magnetism and Electricity (one of the seven associations into which the Union is divided), important resolutions were adopted to insure the unification of effort and advancement of international research in the Association's fields. Among these of particular interest to America may be mentioned: The request that directors of meteorological services arrange that a record of aurora be kept at their climatological stations, thus forming the basis for an annual auroral catalog in accessible form; the recommendation for the comparison of national magnetic standards based on coil-magnetometers, arrangements for which might be effected through the secretariat of the Association; the desirability of a new determination of the Gaussian constants based on the latest data, including especially those from the Polar Year stations; the importance to the study of correlations of solar and terrestrial phenomena of the world-wide net of spectrohelioscopic stations arranged by the Carnegie Institution of Washington through Prof. G. E. Hale, and of the work done on cosmic rays, particularly that undertaken by the same Institution with the help of subventions of the Carnegie Corporation in the Institution's plan for installing and maintaining apparatus at certain fixed observatories for continuous photographic registration of cosmic rays. Record was made of the service done by those governments which have established new stations during the Polar Year, and the desirability was emphasized of continuing as permanent the stations in the western hemisphere at Chesterfield Inlet (Canada), College-Fairbanks (Alaska), and Magallanes (Chile), as well as the continued maintenance of existing observatories and particularly of the South Orkneys station.

The systematic magnetic observations at sea primarily designed to obtain secular-variation data having been interrupted by the regrettable destruction of the non-magnetic vessel *Carnegie*, the Association urged every possible effort to provide for the construction and maintenance of a similar vessel to continue this invaluable work.

ATOMIC PHYSICS AND TERRESTRIAL MAGNETISM

The program of the Carnegie Institution of Washington in the laboratory of its Department of Terrestrial Magnetism at Washington on the basic phenomena of magnetism, directed in recent years towards a study of the simplest interactions of the fundamental material of which all matter is composed, was continued and expanded. The rapid developments in atomic and nuclear physics have suggested further laboratory methods of attack on terrestrial magnetism and electricity as differentiated from what may be called the statistical approach through the accumulation and discussion of observational data distributed over the Earth's surface. The basic constituents of matter are now known to have important magnetic properties which supplement the electric forces by which they were primarily known to interact. Tightly bound together to form the nuclei of atoms of the chemical elements, large energies (on an atomic scale) are required to separate these basic particles in a study of their interactions, and the high-voltage methods previously developed in the Department of Terrestrial Magnetism were used to disintegrate some of the lighter atomic nuclei, yielding information on the energies involved in these particular configurations of the primary particles. For these experiments a one-meter (600-kilovolt) electrostatic generator of the type designed by Van de Graaff was used with a cascade-type high-voltage tube. A special laboratory was built to house the two-meter generator of a like type which was constructed for higher voltages and which was installed. By the end of the year experiments are under way with it at some 1,200 kilovolts in the search for one-quantum isolated magnetic poles predicted by Dirac in 1931. Obviously nothing could be more fundamental to the study of magnetism than proof of the existence of isolated magnetic poles.

METEOROLOGY AND CLIMATOLOGY

By Burton M. Varney

Associate Professor, University of California at Los Angeles

INTERNATIONAL POLAR YEAR

Observations and Classification.—Participation by the Weather Bureau in the International Polar Year program, noted in this section for 1932, has been carried out as arranged. At Point Barrow, Alaska, 320 pilot balloon observations had been secured by August, together with cloud observations averaging eight times a day and numerous special observations. To March 10, nearly 4,000 photographs of the aurora had been made and classified. Other arctic stations have achieved similar progress.

Operating Stations.—In addition to the Polar Year station operated on Mt. Washington, N. H., another station, unmanned, has been established on Mt. Wachusett, Mass. A meteorograph, designed and built by Prof. Fergusson of Harvard University's Blue Hill Meterological Observatory, to run three months without attention, records wind direction and velocity, atmospheric pressure, temperature and humidity.

Coöperation in Polar Year Program.—The University of Michigan expedition to the west coast of Greenland coöperated this year with the International Polar program. Its base was established at the foot of Cornell Glacier, where an intensive series of upper air soundings was an important and very successful part of the program. At the Department of Meteorology, Massachusetts Institute of Technology, the daily airplane flights are coöperating in the Polar Year work. The plane ascends to between 16- and 20,000 feet, its meteorograph recording temperature, pressure, humidity. The pilot records cloud formations and altitudes, motions, amounts of cloud, altitude of the top of the haze layer, and visibility.

APPLICATIONS OF METEOROLOGY

Extension of Hurricane Observations.—The system of Weather Bureau hurricane reports formerly provided information daily from certain ships on regular routes in the southern North Atlantic, the Gulf of Mexico and the Caribbean during the hurricane season. Excellent though this system was, reports from areas where a hurricane was known or suspected to exist were frequently lacking. Beginning with 1933 an additional program provided for direct calls for observations by radiogram to all ships in such zones. The Radio Marine Corporation of America coöperated through its stations at Palm Beach, Tampa, Port Arthur, and Galveston, as did also the South Puerto Rico Sugar Company through its station at Enseñada.

Hurricane Probabilities.—A historical analysis of Florida hurricanes by Gray (*Monthly Weather Review,* January 1933) for the years 1886-1930, shows 37 storms of known hurricane intensity. Probabilities of hurricane winds at any given place in Florida are surprisingly small. At Key West and Pensacola, where probability is greatest, it is one in 10 years; at Miami and West Palm Beach, one in 20; at Tampa, one in 30; at Jacksonville, one in 50. The important conclusion regarding damage is that "if a building is properly constructed, including the proper type of roofing material, and is securely anchored to the proper kind of foundation, it will not sustain serious structural damage in a hurricane of major intensity. If, in addition to this proper construction, all windows, doors, and vents are protected by storm shutters, the building should withstand strong hurricane winds with practically no damage."

Airway Service.—For its airway service, the Weather Bureau increased its teletype reports through the Department of Commerce to cover a total of some 13,000 miles of continuous communication. On 12,000 additional airway miles where teletype is not yet available, radio stations broadcast information and forecasts to ships in flight. Thus, both before and during flights pilots have up-to-the-minute knowledge of weather along their routes.

Snow Surveys. — The science of snow surveying, beginning with the single-handed pioneer efforts of Prof. J. E. Church of the University of Nevada in 1904 has developed a remarkable service to the public. Each winter, detailed snow surveys on major water-sheds in California and Nevada make it possible to forecast water available for irrigation, power, etc., during the ensuing summer. The year 1933 saw important advance in organization for the study of snow problems, when 40 representatives of western states organized at the University of Nevada the Western Interstate Conference on Snow Surveying. Also in this field, the American Geophysical Union's Committee on the Hydrology of Snow coöperated in studying snow surveying problems.

Long-range Forecasting. — In the field of long-range forecasting, the method of seasonal sequence has yielded significant results through the work of J. R. Weeks on the 115-year record at Baltimore and Philadelphia. He finds, for example, large temperature departures in autumn indicative of departures of the same sign for the ensuing winter. Similarly, there is a relationship of opposite sign between autumn temperatures and winter snowfall. When temperature departures are large, the probabilities have run as high as 100 per cent. The following conclusions are warranted: Seasonal foreshadowing by means of local sequences is valueless when conditions do not show much departure from normal. It is of great value when the departures are wide, and should be used freely under such circumstances. At the University of California's Scripps Institution of Oceanography "studies of long-range precipitation forecasts for the California and Oregon regions were continued, making use especially of a 6-year cycle factor and the difference between the summer and winter sea surface temperatures. A method of making quarterly forecasts of monthly temperatures, air and sea, for southern California has also been developed and applied with sufficient success to be of commercial value."

MARINE METEOROLOGY

Gulf Stream Temperatures.—Ocean water temperature studies have led to some findings at variance with others made previously. Thus for the Gulf Stream in the Straits of Florida close to the Florida coast, it is found that while the small fluctuations are due to changes in local *air* temperatures, the longer fluctuations, if extreme enough, can be traced back by refined mathematical methods eliminating the effects of the local air temperatures, to similar *water* temperature departures in the Caribbean Sea some weeks previous. Direct and simple correlation between Caribbean and Straits sea surface temperatures is found to be too insignificant to be useful. The conclusion is that "theories based upon the assumption that a readily identifiable series of masses of warm or cold surface water progresses along the course of the Gulf Stream, affecting the local weather enroute for hundreds or thousands of miles, seem to deserve an attitude of considerable skepticism." Nevertheless, sea-water thermograph records from ships traversing the main body of the Gulf Stream show that the surface temperatures there are rather independent of local weather conditions and do vary directly with previous Caribbean Sea temperatures. Particular attention is being given also to the study of relationships between water temperatures in this main body of the Stream and subsequent sea temperatures and weather farther "downstream" in the Atlantic.

Correlative Temperatures. — Correlations covering the period 1927-1932 has been carried out between temperatures in the Gulf Stream, the Antilles current, and Atlantic waters southeast of the Gulf Stream with temperatures at Blue Hill Observatory in eastern Massachusetts. They show that peaks of temperature departures at Blue Hill in general come in the same month as those in sea surface temperatures, sometimes in the succeeding month. Four major peaks of positive departures and five major peaks of negative departures, for the Antilles water, Gulf Stream water, and Blue Hill show essential concurrence in character. These studies, undertaken jointly by Blue Hill Observatory and Woods Hole Oceanographic Institution will, it is hoped, shed light on seasonal variations of weather in eastern North America.

Temperature Differences. — Th Weather Bureau's Marine Division studying some 400,000 observations o temperature in sea surface and th overlying air for the West Indian region, has reached some important results. We now have (see *Transactions* American Geophysical Union, 1933 charts showing average annual, June and December temperature difference between sea and overlying air, Jun winds and water-isotherms, Decembe winds and water-isotherms, and seasonal curves of water and air temperatures, covering the Gulf of Mexic Caribbean and Atlantic water east t longitude 52.5° and between latitude 10° and 30° N. Certain tentative conclusions seem to show that in tha region air temperatures are dominan over sea surface temperatures.

ORIGINS OF AMERICAN WEATHE

The impact upon American meteorology of the modern European, especially Norwegian methods of analyzing the weather-making processes became increasingly evident in 1933 From the Massachusetts Institute o Technology with the Scripps Institution of Oceanography coöperating came the outstanding contributions i this field. (Willett: *American Ai Mass Properties*; and Byers: *The Ai Masses of the North Pacific*). In them are recognized six primary "source regions," four oceanic and two continental, from which six characteristically conditioned types of "ai mass" carry their influences far and wide over North America. From th interactions of these air masses wit the sea or land over which they mov and particularly with each other along their mutual boundary zones o "fronts," come the infinitely varied phenomena of our weather. Of these interactions and their consequences certain examples are selected for detailed analysis.

SCIENTIFIC MEETINGS

The American Meteorological Society, in its fourteenth year, hel four meetings: at Washington i April, Salt Lake City in June, Chicag in June, and the annual meeting a Harvard University in December. Fea tures of the Washington meeting were a paper by Dr. L. Vegard of Oslo, on "The Aurorae and the High Strata of the Atmosphere," and papers by Fergusson and Grimminger on new forms of anemometers. Research papers at the Salt Lake City meeting included President H. H. Kimball's "The Use of Glass Color-Screens in the Study of Atmospheric Depletion of Solar Radiation"; Smith and Fulks: "Exact Method of Eliminating the Annual Cycle from Temperature Data," and G. H. Taylor's "Some Meteorological Fluctuations of Ground-Water Levels." T. C. Adams presented new data on seasonal changes in rates of evaporation from Great Salt Lake. Among others, there were papers on forecasting of stream run-off, weather and city smoke, canyon winds, ancient climates.

The Chicago meeting was one of the most significant in the Society's history. The research papers were of outstanding importance. Dr. J. Bjerknes, a leading exponent of the Norwegian methods, discussed "Vertical Cross-Section through Extra-Tropical Cyclones," "The Dynamics of Penetrative Convection," and his "Theory of the General Circulation of the Atmosphere." A century of progress in American meteorology was reviewed by Messrs. Miller and Gregg of the U. S. Weather Bureau and Fergusson of Blue Hill. Problems in atmospheric optics were dealt with by Drs. Kimball and Haurwitz; in radiation by Patterson, Director of the Meteorological Office of Canada, Humphreys of the Weather Bureau, and Kimball of Blue Hill. The increasingly important contributions of the Massachusetts Institute of Technology and the Blue Hill Observatory were also represented by Professor C. G. Rossby's paper on "Atmospheric Turbulance," Wexler's "Remarks Concerning an Extension of the Ångström Coefficient of Atmospheric Turbidity," Church's "Dynamic Climatology from the M. I. T. Weather Maps," Fergusson's "Anemometer Experiments" with an extraordinary sensitive balsa-wood wind velocity measurer. (For details of these and many other papers read at the Chicago meeting, see *Bull.* Am. Met'l. Soc., and the Weather Bureau's *Monthly Weather Review.*)

Progress reported at the Harvard University meeting in December will reach publication during 1934. Notable features were the preliminary reports of the International Polar Year, especially the aerological, cloud and solar data from Mt. Washington and Blue Hill and the airplane observations by the Massachusetts Institute of Technology, and President Kimball's study of "Atmospheric Turbidity" in air masses in eastern North America.

American Geophysical Union.—The Section on Meteorology of the American Geophysical Union discussed many important papers, for which see the *Transactions* of the American Geophysical Union, 1933.

Pacific Science Congress.—Contributions by American meteorologists were an important feature of the Pacific Science Congress in June. (See *Transactions* of the Congress).

CLIMATOLOGICAL RESEARCHES

Probably the most important investigation reported upon was C. W. Thornthwaite's classification of "The Climates of the Earth." In this study "precipitation effectiveness" and "temperature efficiency" as related to vegetation types are the underlying concepts. The numerical methods of using mean monthly temperature and precipitation records to derive quantitative statements of these concepts were given in his paper on "The Climates of North America According to New Classifications" in 1931. (See *Geographical Review* for that and the present paper). Since "precipitation efficiency" grades from a maximum in equatorial rain forests to nearly zero in tropical deserts and "temperature effectiveness" from a maximum in tropical climates to zero in perpetual frost climates, the climatic types correspond to these gradations. The classification segregates five humidity types with P-E indices ranging from 128 and over (wettest) to 0-15 (driest) and six T-E types with similar indices. These, when modified by 4 types of seasonal distribution of rain (highly important in influencing vegetation type) result in 120 theoretically possible types of which 32 are actually found upon the earth. The results are embodied in a superb world map of climatic types.

A series of five raininess charts of the United States (Miller, *Monthly Weather Review,* February, 1933), shows, on maps for the four seasons and for the year, the distribution of average rainfall per rainy day. To the lower Mississippi Valley and eastern Gulf states goes the palm for the rainiest days, .4, .5, .6 inch average, contrasted with .1 and .2 over the plain and mountain states of the West. Anywhere on the Pacific Coast, whether in Puget Sound country or in southern California, a "rainy day" on the average (except in summer) brings about .4 to .5 inch.

The first of an announced series of studies in the diurnal variations of relative humidity, vapor pressure and wind in the free-air over the United States by the U. S. Weather Bureau was Ballard's "The Diurnal Variation of Free-Air Temperature and the Temperature Lapse Rate." In addition to summarizing the data at hand it developed mathematical methods of treating the limited data available and reached important conclusions of which the following are typical: that a definite single period of daily temperature variation extends on the average to about a thousand meters above ground; that the magnitude of the daily range diminishes at first rapidly from its maximum at the ground and then more slowly; that beyond the thousand-meter level the daily range is in general less than 1° C. These are striking commentaries on the fact that human beings live in the most changeable part of the earth's atmosphere.

OCEANOGRAPHY

BY H. A. MARMER

UNITED STATES COAST AND GEODETIC SURVEY

ATLANTIC OCEAN

Ice Patrol and Cruises.—The annual ice patrol in the area of the Grand Banks of Newfoundland was resumed by the Coast Guard in March. Six cruises were made for the purpose of collecting data, by observations and radio reports, for the construction of surface isothermal charts of the Grand Banks region. Twenty-five stations were occupied at each of these temperatures and salinities were measured from the surface to a depth of 1,000 meters. Beginning the latter part of June a post-season northern cruise of a month's duration was made between Newfoundland, Labrador and southwestern Greenland during which 112 stations were occupied, temperature and salinity observations being made from the surface down to a depth of 2,500 meters. Arsuk glacier in southwestern Greenland was visited, and photographs recording its retreat were made.

Tide Observations and Hydrographic Surveys. — The Coast and Geodetic Survey maintained nineteen primary tide stations along the coast from Maine to Florida for the purpose of hydrographic control and for determination of changes in sea level. Three ships were engaged in surveying the continental shelf off the coasts of Maryland and Virginia, covering an area of approximately 4,000 square miles. In addition to developing several large shoals and disproving the reported existence of others two large submarine valleys, which possibly mark ancient river beds of the Delaware River, were developed.

The Woods Hole Oceanographic Institute made a number of cruises in its research ship *Atlantis* principally in the Gulf of Maine and in the water of the Gulf Stream in connection with various oceanographic investigations. These included studies on seasonal variations in the physical and chemical characteristics of the waters, and on the development of our knowledge of the Gulf Stream, especially in connection with the structural changes which this important current undergoes between the Straits of Florida and mid-ocean. In coöperation with the Blue Hill Observatory a study of sea surface temperatures was made to determine the possible relation between land and water temperatures.

PACIFIC OCEAN

Hydrographic Surveys.—The Hydrographic Office completed the survey of the Gulf of Panama, the important waterway which forms the approach on the Pacific side to the Panama Canal. Naval vessels also conducted dynamic oceanographic surveys in Panaman, Costa Rican and Alaskan waters, and the U. S. S. *Ramapo* made 1,632 soundings in six crossings of the North Pacific. Vessels of the Coast and Geodetic Survey completed the offshore surveys of the California coast, furnishing an accurate configuration of the ocean floor for a distance of about 70 miles from the coast. A notable feature of this survey is the discovery of a detached submarine mountain rising sharply to an elevation of 7,500 feet from a generally flat plain 12,000 feet below the surface of the sea. Coast and Geodetic Survey vessels also continued hydrographic surveys in Alaskan waters, during which several dangerous rocks in the approaches to Kodiak were discovered.

Tidal Surveys and Studies.—Eight primary tide stations were maintained in continuous operation by the Coast and Geodetic Survey along the coast from California to Alaska for the purpose of furnishing hydrographic control and tidal data in general. A special tidal survey of the coast of Oregon was made in order to develop the tidal characteristics in these waters and more particularly for the purpose of determining accurate tidal datums on which to base elevations.

The Scripps Institution of Oceanography conducted investigations on dynamical oceanography, the relations between conditions in the sea and the meteorological conditions over the adjacent coasts, chemical properties of sea water in relation to plant growth and geological processes, the nature and origin of sediments on the sea bottom, the role of microorganisms in the biological productivity of the sea, and the relation of marine organisms to their environment.

The Oceanographic Laboratories of the University of Washington carried on investigations in Puget Sound and adjacent waters, in connection with which the research ship *Catalyst* cruised some 6,000 miles. The studies dealt with the seasonal distribution of plankton organisms, bottom fauna, penetration of light into the sea, and with the physical and chemical properties of sea waters, including radioactivity. Particular attention was directed to the upwelling of bottom water off the north Pacific coast.

GULF OF MEXICO

Tide Observations and Hydrographic Surveys. — The Coast and Geodetic Survey maintained in operation four primary tide stations, furnishing tidal data, hydrographic control and sea level changes in this body of water. A special tidal survey of the west coast of Florida was begun, both for the purpose of determining accurate datum planes and for furnishing data for determining the difference in elevation between the waters on the Gulf and Atlantic coasts of the Florida peninsula. Working off the coast of Louisiana, the Coast and Geodetic Survey Ship *Hydrographer* extended, for the first time, detailed surveys to the hundred fathom curve, which in this locality is 100 miles offshore.

AMERICAN GEOPHYSICAL UNION

Meeting of Section of Oceanography.—The annual meeting of the Section of Oceanography of the American Geophysical Union was held in Washington, D. C., April 28, 1933. Papers were read by representatives from the various Federal and educational institutions engaged in oceanographic work, outlining the progress and development of oceanography during the past year. In addition to the work of the institutions, which was sketched above, the papers dealt with submarine valleys, and the Gulf Stream. These papers appear in full in the *Transactions of the American Geophysical Union* published by the National Research Council in June, 1933.

XX. GEOPHYSICAL SCIENCES

AMERICAN EXPLORATION

By Robert M. Brown

Professor, Rhode Island College of Education

IN THE AIR

The Lindberghs.—Colonel and Mrs. Charles A. Lindbergh left New York July 9 on an extended journey for the purpose, as reported by the press, of securing specific data with regard to flying conditions over sections of the Atlantic Ocean and of aiding the trans-atlantic survey program of the Pan-American Airways system. After stopping at North Haven, Me.; Halifax, St. Johns, Cartwright and Hopedale, Labrador, they reached Godthaab, Greenland July 22. They remained in Greenland until Aug. 15, investigating flying conditions. They crossed Baffin Bay to Baffin Island, followed the west coast as far north as Disko Island, flew over the Greenland glacier, 1,000 miles, to Clavering Island in latitude 74 degrees north, and after surveying the east and south coasts reached Angmagsalik on the east coast Aug. 12. Leaving Greenland on Aug. 15, they reached Copenhagen on Aug. 16 after stops at Iceland, Faeroe and Shetland Islands. Between this date and Nov. 21, the Lindberghs visited a number of cities in Europe, going as far east as Leningrad and Moscow. On Nov. 21 they took off from Lisbon and flew to the Azores, 900 miles; then on Nov. 24 from Ponta Delgada to Las Palmas, Canary Islands, 900 miles, and finally reached Bathurst, British Gambia, Africa Nov. 30. On Dec. 5, Colonel and Mrs. Lindbergh crossed the South Atlantic from Bathurst to Natal, Brazil, a distance of 1,875 miles, in a little less than eighteen hours. The remarkable part of the trip was the ease with which it was apparently done. It appeared as a leisurely journey during which Lindberg did not push his plane, capable of making 160 miles an hour, above an average speed of 118 miles an hour. To this point they had flown over 19,100 miles. On Dec. 8, they left Natal an reached Para (Belem) Brazil, aft a flight of approximately 1,00 miles; on Dec. 10, the Lindbergh flew up the Amazon River, 932 miles to Manaos, Brazil; thence to Trin dad Dec. 12, San Juan, Puerto Ric Dec. 14, and Miami Dec. 16. The reached New York Dec. 19, com pleting a total of something ove 29,000 miles in distance and abou 198 hours in flying time, and visitin 21 countries on four continents. O Dec. 22 it was officially announce that Col. Lindbergh had presented h plane (*Tingmissartog*) to the Museu of Natural History in New York.

James J. Mattern in the *Century* c *Progress* left New York June 13t for a flight around the world in a attempt to break the Post-Gatty re ord. He reached Khabarvosk, Si beria, June 13th. After leaving th station he was lost for 23 days an was finally reported safe at Anad where his plane crashed. His no stop flight from New York to No way (Jomfruland Island) of 3,60 miles in 23 hours 35 minutes was new record in flying.

Wiley Post, who with Harol Gatty made a round-the-world recor of 8 days 16 hours in 1931, left Ne York July 16th in the *Winnie Mae* i an attempt to break the record o his previous trip. He reached Ne York again on July 22d, 186 hou 49.5 minutes later, reducing th elapsed time of his previous trip b 21 hours 10 minutes.

Stephen Darius and Stanley Gi enas, two Lithuanian-American took off on the same day that Po left for a non-stop flight to Lit uania, a distance of 4,900 miles. Th plane came to ground at Kundamn Pomerania, Germany, and the flye were killed.

James M. and Amy Johnson Mo lison left Pandine Sands, Wales, Ju 22d, and landed their plane—

forcibly as to injure the occupants—at the Bridgeport (Conn.) Airport.

Paul Codos and Maurice Rossi, French airmen, made a new record for distance flying, beating the record of 5,340 miles held by Gaylord and Nicholetts, British flyers, on their South African flight of February, 1933. The French flyers left New York Aug. 8 and landed at the Rayack Airport in Syria, 55 hours 29 minutes out from New York with an approximate mileage of 5,900.

General Francesco de Pinedo, in an attempt to beat the distance record, was killed in his take-off at Floyd Bennett Field.

General Italo Balbo visited the Century of Progress Fair at Chicago during the summer with 24 sea planes from Italy under his leadership. The trip was made *via* Iceland and Greenland, a distance of about 6,100 miles, and the return on a southern route touching Bermuda and the Azores. One member of the party was killed at Amsterdam and one plane turned over at Ponta Delgada during the take-off, killing one man and injuring two others.

The Year's Record.—The 1933 flying season record was one of achievement, and the decreased number of fatalities in pioneering flights was encouraging. In addition to the three deaths already noted, Russell Boardman lost his life in Indianapolis in a race for the New York-California record. This was won by Col. Roscoe Turner in 11 hours and 40 minutes.

IN THE ANTARCTIC

Rear Admiral Richard E. Byrd with two ships *The Bear* and *The Pacific Fir* (*Jacob Ruppert*) carrying two planes, a number of scientists and 150 dogs left for the Antarctic in October. Besides the general geographical explorations, it is hoped that some information will be gained concerning prehistoric land connections between Antarctica and the present continents of South America, South Africa and Australia.

Lincoln Ellsworth, who will lead the Ellsworth Transantarctic Flight Expedition, will have for his flying companion, Bernt Balchen, and Sir Hubert Wilkins will serve as reporter of the Expedition. From his base in Ross Sea he plans a 3,000 mile non-stop flight across the continent to Wedell Sea and return.

AMERICAN MUSEUM OF NATURAL HISTORY

New Guinea.—Dr. Margaret Mead, Assistant Curator of Ethnology, completed her work on the Yuet River in New Guinea. Her extensive collections have already been received at the Museum. Richard Archbold, Research Assistant in the Department of Mammalogy, sailed for New Guinea Jan. 19th. The expedition will spend the entire year collecting birds, mammals, reptiles, amphibians and fishes along the coast and in the interior of New Guinea.

East Africa.—F. Trubee Davison, President of the American Museum of Natural History, was in East Africa for the purpose of obtaining four elephants to go in the new African Hall of the Museum and for general collecting. He returned the middle of October. The expedition was highly successful.

Angola.—A splendid series of over 1,000 mammals has been secured from Angola, Africa. The collection contained a series of jumping shrews of two genera, *Nasilio* and *Elephantulus.* These specimens seem to be the first recorded from Angola.

Bahamas.—Dr. Roy W. Miner and Cris E. Olsen spent six weeks in the Bahama Islands. They made undersea observations on the coral reefs of Rose Island and Andros Island in connection with the completion of the coral reef group in the Hall of Ocean Life. Diving helmets and undersea cameras were used in securing photographs and motion pictures.

FIELD MUSEUM

The Hancock Expedition to Guadalupe for the Field Museum was led by Capt. G. Allan Hancock of Los Angeles aboard his yacht *Velero III.* The expedition collected by permission of the Mexican Government specimens of elephant seal for a proposed group for the Museum's Hall of Marine Mammals. Dr. Harry M. Wegeforth, president of the Zoological Society of San Diego, and two members of the Museum's taxidermy staff, Julius Friesser and Frank C. Wonder, were among members of the party.

Colorado. — The Field Museum Archeological expedition to the Southwest, which conducted excavations on the Lowry ruin in Colorado during the summers of 1930 and 1931, but was suspended in 1932, is resuming operations this summer. Dr. Paul S. Martin, assistant curator of North American archeology at the Museum, who was leader during the expedition's two previous seasons, left Chicago June 16 to take charge of the work. The Lowry ruin is a site near Ackmen, Colorado, which contains the remains of an offshoot of the ancient North American culture known as that of Chaco Canyon. In the previous seasons the expedition exposed two kivas or ceremonial rooms, and collected pottery, prayersticks and other artifacts of the ancient Indians who inhabited the pueblo. It was ascertained that the middle period of the pueblo was probably somewhere between A.D. 800 and 1,000, but the time of the earliest occupation remains to be traced. The expedition is financed from funds provided by the late Julius and Augusta N. Rosenwald.

Dr. William Beebe of the New York Zoölogical Society surveyed the possibilities of ichthyological study in the Pearl Islands and Chirique Lagoon; and then continued his ecological work near Bermuda on shallow and deep-water fish.

SMITHSONIAN INSTITUTION

The Johnson-Smithsonian Deep Sea Expedition which sailed on the yacht *Caroline* to the Puerto Rico deep brought back a collection of deep-sea animals. The yacht was equipped with the latest type of sounding apparatus and many measurements of ocean depth were made. A maximum depth of 4,400 fathoms was found. The expedition obtained a representative assembly of the life of this portion of the sea down th about 3,200 feet.

ACADEMY OF NATURAL SCIENCES PHILADELPHIA

South America.—W. Judson Coxey completed his sixth expedition to Ecuador and brought back a collection of moths and butterflies. M. A. Carriker Jr. made his fifth expedition to Peru in his ornithologica survey of that country.

North America.—Nicholas Biddl with Harold T. Green went to Alask to secure specimens and natural accessories for a life group of the moose. R. R. M. Carpenter journeyed to Alaskan waters and Brook Dolan to East Greenland for zoölogical specimens. James Bond, on hi seventh expedition to the West Indies, completed his extensive collection of birds.

NATIONAL GEOGRAPHIC SOCIETY

Mt. Katmai Liverworts.—The National Geographic Society continue during 1933 to publish the result of expeditions of previous years There were two papers on the growt of Mt. Katmai liverworts, one by Dr. Robert F. Griggs, leader of the Mt. Katmai Expeditions, and the other by Dr. Griggs and Danie Ready. In the first paper the story was told of the colonization of the liverworts on the Katmai ash, a new and inorganic "soil," showing how the liverworts pioneered in this as and laid down a carpet upon whic mosses took root, then willows whic were followed by grasses and othe seed plants. In the second pape was given an account of the experiments in growing Katmai liverwort of the genus *Cephaloziella* in nitrogen-free soil, or at least a culture solution so nearly free from nitroge that tests did not reveal its presence. In this medium, which would no support green algae which require only one or two parts per million of combined nitrogen or nitrates and ammonia, the liverworts increased many hundredfold, and their nitrogen content at the end of the growth perio was disclosed to be approximately 3,000-3,800 parts per million.

Venezuela-Brazil.—A second paper was also published by Ernest G. Holt, leader of the National Geographic Society Venezuela-Brazil Expedition, on his explorations in the Venezuela-Brazil boundary country.

Byrd Expedition.—In support of the second Antarctic Expedition of Admiral Richard E. Byrd, the society agreed to furnish the photographic equipment and voted a grant of $10,000 from its funds set aside for research.

Chilean Patagonia.—Arrangements were completed by the Society for a survey of Chilean Patagonia, led by Amos Burg, for the purpose of making pictorial records and gathering data of the native life and of the fauna and flora of the southernmost area of South America and its waters.

UNIVERSITY EXPEDITIONS

The Fifth University of Michigan Greenland Expedition, coinciding with the Second Polar Year Expeditions of 1932-33, was stationed near the foot of the Cornell Glacier outlet and was under the directorship of Dr. Ralph L. Belknap. With him are Evans S. Schmeling, aerologist, and Herbert Gardner, photographer and botanist. Early in the year Dr. Belknap was planning to make trips over the inland ice and carry out various scientific studies including the upper air and sounding of the glacier.

The Third Maya Expedition, University of Michigan, for a biological survey of the Maya region in Central America in coöperation with the Carnegie Institution, Washington, sailed in March for the great savannah area lying beyond Lake Peten, Guatemala, where detailed studies and collections of the fauna and flora will be made. The party consisted of Dr. L. C. Stuart, herpetologist and C. L. Lundess, botanist.

The Yale North India Expedition, led by Dr. Hellmut de Terra and including Mrs. de Terra, Prof. G. E. Hutchinson, biologist, and G. E. Lewis, paleontologist, returned early in the year. Traces of prehistoric man in the form of knives, scrapers and other implements and the remains of a mammoth, whose former existence in the Himalayas has been hitherto unsuspected, comprised two of the more important finds made by the expedition. The geographical, geological and zoölogical information obtained is expected to change present ideas about the early history and origin of the world's highest mountains.

The Yale Expedition to Newfoundland under the leadership of Prof. Carl O. Dunbar was facilitated by the use of the steam yacht *Utowana* owned by A. V. Armour, Yale '84. The party left New Haven late in June with the purpose of studying the older Paleozoic rocks along the west coast of Newfoundland. During July their work was centered about Port au Port, Humber Arm of the Bay of Islands, and Cow Head Peninsula, in the southern and central portions of the west coast. During August the *Utowana* took the expedition north to Labrador for a few days' collecting, and then put the members ashore at various points in northwestern Newfoundland that would otherwise be difficult of access. In addition to this service, the yacht enabled the expedition to bring back to Peabody Museum extensive collections of fossils.

GRAVITY EXPEDITION IN CUBA

An expedition was sponsored by the American Geophysical Union with the coöperation of the Cuban Government, the Campañía Pelrotera Carco, the United States Coast and Geodetic Survey, the United States Naval Observatory and the Geology Department of Princeton University to determine direct gravity by means of the new Brown apparatus at certain key points selected in relation to data already available from the torsion balance survey and structural studies completed by the Campañía Petrolera Carco.

XX. GEOPHYSICAL SCIENCES

CARTOGRAPHY

By W. L. G. Joerg

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LAND UTILIZATION MAPS

Tennessee River Basin.—The national recovery program, in its fundamental aspects that relate to land, and the investigations that preceded that program are reflected in a number of important maps. Of the area under the jurisdiction of the Tennessee Valley Authority the U. S. Geological Survey has published (1933) a base map showing the limits of the Tennessee River Basin and a map showing the natural resources of that area, both on the scale of 1:500,000.

United States As a Whole.—The two outstanding maps in this group divide the country into natural and economic units. The first, Natural Land Use Areas, 1:400,000, by C. P. Barnes and F. J. Marschner (Bureau of Agricultural Economics, 1933) shows 272 natural areas based on the physical characteristics of the land that influence its use. These areas are grouped into 24 related kinds, under two major categories: areas containing little (9) or much (15) land the best use of which is problematical. The second map, Type-of-Farming Areas, 1:5,750,000, by F. F. Elliot (accompanying text report, Bureau of the Census, 1933; also a separate colored edition, 1:8,000,000), indicates, on the basis of 1930 census data, no less than 514 areas. The defining criterion is proportion of income derived from given sources. According to this the areas are grouped into the following 21 major types: dominant (11), combination (7), mixed farming (1), general farming (1), non-agricultural (1).

Sections and Individual States.—The important series of land classification maps of the Northern Great Plains referred to in the American Year Book for 1927 (p. 611) has been doubled by a like series in 1:500,000 for the Central Great Plains and Colorado covering the area between 43° and 37° N. and 100° and 109° W. (except the extreme northwest corner). Utah has also been classified (map in 1:750,000, U. S. Geol. Survey, 1931). The series of similar maps of the Canadian Northwest there also referred to has been augmented by numerous soil maps, prepared by the Prairie Provinces; the first index map showing the location of all the land classification and soil maps published by the Dominion and Provincial authorities for this area appears in W. A. Mackintosh's *Prairie Settlement: The Geographical Setting* (Vol. 1 of *Canadian Frontiers of Settlement*, Toronto, 1934). A related notable Canadian contribution is the publication entitled *Agriculture, Climate, and Population of the Prairie Provinces of Canada: A Statistical Atlas*, by W. B. Hurd and T. W. Grindley (Bureau of Statistics, Ottawa, 1931). The framework into which all these various maps fit is provided by a map of the agricultural regions of North America, 1:16,000,000, by O. E. Baker (*Economic Geography*, Clark University, Oct. 1926), the first of a series of continent maps of that type which have appeared in that journal.

The outstanding exposition of the method of intensive field studies of small areas practiced by a group of geographers especially in the Middle West has just been provided by V. C. Finch in a study of Montfort, an area in southwestern Wisconsin (*Geogr. Soc. of Chicago Bull.* No. 9, 1933). The accompanying land utilization map in 1:23,760 outlines about 5000 ''geographical complexes'' in its area of 47 square miles, the specific character of each of which is indicated by means of a numerical device. An additional series of 8 maps in 1:63,360 represents the distribution of each constituent element of the landscape throughout the area. Geographers' methods have also affected the work of the Land Economic Survey of Michigan (pairs of "soil and lay of the land" and "farm-forest" maps in 1:63,360 of certain northern counties) and the land economic inventories in northern Wisconsin (e. g. "forest and form cover" maps 1:63,360 of Bayfield County by townships, *Dept. of Agric. Bull.* No. 100).

MAPS OF THE UNITED STATES

Physical. — A serviceable and pleasing general reference map of the United States, 1:5,195,520, with relief in hachures, was published with the *National Geographic Magazine* for April, 1933. The transportational status of our time is reflected in the reversal of the usual emphasis in the symbols for highways and railroads, the former being shown more prominently. The definitive geological map of the United States, 1:2,500,000, was published by the U. S. Geological Survey in connection with the International Geological Congress that met in this country in 1933. The *Atlas of American Geology* by A. K. Lobeck (Geogr. Press, Columbia Univ., 1932) illuminates its topic in the author's admirable manner by means of block diagrams, conventional and birds-eye-view maps, etc. (see THE AMERICAN YEAR BOOK, 1925, p. 878).

Human.—The true inwardness of the human and economic geography is illustrated in a wealth of maps, cartograms, and diagrams in a handy atlas entitled *Man in the United States* by Mark Jefferson (Ypsilanti, Mich., 1933). A useful large-scale representation of the population distribution of the United States by the dot method is supplied on a map in 1:3,000,000 by F. A. Stilgenbauer (Rand McNally Co., Chicago, 1932; also small-scale edition in 1:8,200,000). The literacy of this population in 1930 is shown by counties on a map in 1:3,800,000 published by the Office of Education, Dept. of the Interior (1933). The voting habits of the population are illustrated in an ingenious map showing the percentages of Presidential elections between 1876 and 1928 carried by counties by the Democratic and Republican parties respectively (J. K. Wright, *Geogr. Rev.*, Oct., 1932). Another map shows the areas carried by minor parties. The Office of National Parks, Dept. of the Interior, published (1933) a useful map in 1:4,750,000 of the Federal and State recreational areas of the country.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF PETROLEUM GEOLOGISTS, Box 1852, Tulsa, Okla.

AMERICAN GEOGRAPHICAL SOCIETY, Broadway at 156th St., New York City.

AMERICAN METEOROLOGICAL SOCIETY, Blue Hill Observatory, Milton, Mass.

APPALACHIAN MOUNTAIN CLUB, 5 Joy St., Boston, Mass.

ASSOCIATION OF AMERICAN GEOGRAPHERS, University of Pennsylvania, Philadelphia, Pa.

EXPLORERS CLUB, 10 W. 72nd Street, New York City.

GEOLOGICAL SOCIETY OF AMERICA, 419 W. 117th Street, New York City.

NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.

SEISMOLOGICAL SOCIETY OF AMERICA, Clark University, Worcester, Mass.

DIVISION XXI

CHEMISTRY AND PHYSICS

INORGANIC AND PHYSICAL CHEMISTRY

By Hugh S. Taylor

Professor, Princeton University

GENERAL

In the report for the previous year it was emphasized that the swift developments in the question of the elementary nature of hydrogen must be somewhat overwhelming to the more conservatively minded chemists who trusted too unquestioningly in the finality of 19th century achievements. To an even more startling degree is this true of the record in the present year. The possible isolation of heavy water containing exclusively hydrogen isotope of mass 2, forecast in the previous report, has been accomplished and has opened up an enormous new field of scientific investigation in chemistry, physics, biology, and astronomy that is already being vigorously pursued both in America and Europe.

HEAVY WATER

The process of concentration of heavy water by electrolysis of ordinary water, forecast in the previous year by Washburn, was shown to be practicable in March of this year by Lewis (*J. Am. Chem. Soc.*, 55, 1297, 1933) who announced that he had thus prepared a small amount of water in which 35 per cent of all the hydrogen present had a mass of 2. In June, in a communication to the new *Journal of Chemical Physics* (1, 341, 1933), Lewis and Macdonald outlined their process and announced the production of 0.5 cubic centimeters of water containing 65.7 per cent of the heavy isotope. In July (*J. Am. Chem. Soc.*, 55, 3058, 1933) the same authors announced the preparation of 0.12 cc. of density D_4^{25} 1.1056 and estimated to contain less than 0.01 per cent of light hydrogen. The method employed consisted in electrolysing a volume of 0.5 normal sodium hydroxide solution between nickel electrodes, the hydrogen evolved being relatively richer in light isotope than the solution, which thereby became concentrated. In April of this year, Taylor and Eyring described (*Proc. Am. Phil. Soc.*, 72, 255, 1933) a modified form of the electrolytic method suitable to large scale production of heavy water. With this apparatus approximately 600 gallons of old electrolyte liquor from electrolytic hydrogen plants have been treated at Princeton from May until September and 80 cc. of heavy water containing upwards of 90 per cent of heavy hydrogen have been made available for research. The procedure employed is detailed in the *Journal of Chemical Physics* (Dec., 1933).

Abundance of Heavy Isotope.—The abundance of heavy hydrogen in water has been more closely defined than hitherto. Lewis suggested that his results were more consistent with an abundance of 1 part of heavy in 6,000 parts of ordinary water rather than with 1 part in 30,000 such as had been believed previously. An authoritative examination of this point by Bleakney and Gould (*Phys. Rev.*, 44, 265, 1933) using the mass spectrograph clarified the problem by showing an abundance of 1 part of heavy in 5,500 parts of rain water and one of 1 part heavy hydrogen in 25,000 parts of the hydrogen gas produced by electrolysis. These results clarify the early results and reveal also the quantitative basis for the enrichment by electrolysis. The data of Taylor, Eyring and Frost show a four-fold concentration of heavy isotope in dilute mixtures when the volume of electrolyte is reduced to one-sixth by electrolysis.

An observation of cosmological significance is discussed by Menzel (*Pub. Astr. Soc. Pacific,* 44, 41, 1932) in the rarity of H^2 in astronomical spectrograms. It may be necessary to recast our ideas of the uniformity of the material universe.

Properties of Heavy Water.—Lewis and Macdonald give the density of pure heavy water as 1.1056 at 25° C., the freezing point as +3.8° C. and the boiling point as 101.42° C. At the boiling point of water the vapor pressure difference is 38.4 mm., and the heat of vaporization is greater than that of ordinary water by 259 calories per mole. Curiously, the heavy water has a maximum density, not at 4° C. as with ordinary water, but about 11.6° C. Heavy water seems to be more abnormal even than ordinary water but approximates more in properties to ordinary water as the temperature is raised. The heavy water is more viscous than ordinary water, by 30 per cent at 5° C., 24.9 per cent at 20° C. and 19.8 per cent at 35° C. (Lewis and Macdonald, *J. Am. Chem. Soc.,* 55, 4730, 1933). The dielectric constant is less than that of ordinary water (Lewis, Olson and Maroney, *J. Am. Chem. Soc.,* 55, 4731, 1933), in agreement with which is the observation of Taylor, Caley and Eyring (*J. Am. Chem. Soc.,* 55, 4334, 1933) that the solubility of such salts as sodium chloride and barium chloride is less in heavy than in light water. The equivalent conductance of potassium chloride is 16 per cent greater at 25° C. in light water than in heavy water. With hydrogen chloride (H^1Cl) the conductance in ordinary water is 39 per cent greater than that of H^2Cl in heavy water at 25° C. The mobility of the heavy hydrogen ion H^2+ is thus found to be 213.7 at 18° C. as compared with 315 for H^1+ at the same temperature in ordinary water. (Lewis and Doody, *J. Am. Chem. Soc.,* 55, 3504, 1933). It will be seen that this observation is of importance in a decision as to the mechanism whereby electrolysis produces separation. The molecular refraction and the surface tension of the heavy water are somewhat less than in the case of ordinary water. (Selwood and Frost, *J. Am. Chem. Soc.,* 55, 4335, 1933).

Hydrogen Isotope Reactions.—The heavy hydrogen chloride (H^2Cl) mentioned above was prepared by dissolving a minute quantity of light hydrogen chloride in heavy water. Owing to interchange with the heavy hydrogen of the water the ions become almost exclusively H^2+ ions. A similar exchange reaction was shown by Lewis to occur with ammonia (NH_3) which in water may be regarded as forming ammonium hydroxide and again dehydrating. Now the fourth hydrogen of the ammonium ion is exactly like the others, and when dehydration occurs each of the four hydrogens has an equal change of being lost. Hence, there must be rapidly produced a random distribution of the hydrogen isotope between NH_3 and H_2O. Lewis confirmed this by experimental test. A similar reaction between SO_2 and H_2O was shown to permit isotope exchange between O^{16} and O^{18}.

The ammonia result has been confirmed by Bonhoeffer and Brown (*Z. Physik. Chem.* 23B, 171, 1933) and an even more striking example of isotope exchange has been indicated. According to these authors, heavy hydrogen in heavy water will exchange with half of the light hydrogens in cane sugar. They check this observation by measurements which show that heavy sugar exchanges with light water. This result is startling to those versed in the classical organic chemistry of sugars. No such instability of the hydroxyl (OH) groups in sugar has hitherto been contemplated. The experiment does serve, however, to indicate the importance of the weapon provided by the isotope in the study of chemical mechanism. A variety of similar uses of hydrogen isotope as an "indicator" in chemical mechanisms are at present under study. How far it may be necessary to revolutionize our ideas in this matter is indicated by the recent letter of Oliphant (*Nature,* 132, 675, 1933) which reports that even the molecular hydrogen gas, either H^1H^2 or H^2H^2, will exchange with the hydrogen H^1 of water.

The Biochemistry of Heavy Water.—It was obvious that the biological effects of heavy water would soon receive attention. Lewis (*J. Am. Chem. Soc.,* 55, 3503, 1933) quickly found that the minute seeds of the tobacco plant (nicotiana tabacum var. purpurea), which almost infallibly germinate in ordinary water, showed no development at the end of two weeks in contact with heavy water whereas the controls in ordinary water formed well-developed seedlings. In 50 per cent water, the development in four days was equivalent to that in ordinary water in about two days. Lewis speculates on the possible variation in the proportions of isotopes in living matter and suggests that this marked difference in biochemical behavior lends a further incentive to such research.

The biochemical action of heavy water on the vital activities of fresh water organisms was studied by Taylor, Swingle Eyring and Frost (*J. Chem. Phys.,* 1, 751, 1933). Water containing 92 per cent heavy isotope was toxic to tadpoles of the green frog which died within an hour to the common aquarium fish the guppy which died in two hours and to flat worms which died within three hours. The protozoan paramoecium, was more resistant and survived as much as 48 hours. In water of 32 per cent isotope concentration these animals showed no marked ill effects. Quite recently it has been shown by Harvey that certain luminous bacteria can be made to grow in a culture medium produced with 97 per cent heavy water, but, judging by the relatively feeble intensity of illumination as compared with that from the same type of bacteria in ordinary water media, the rate of growth is much diminished.

The cause of the toxicity of heavy water observed in these vital processes is not yet understood but it is possible that it is in some measure connected with the isotope exchange phenomenon discussed in the preceding section. An exchange of light hydrogen for heavy on the cell surfaces might profoundly modify the activity of the cell. It is evident, however, that there are significant biological problems here awaiting investigation.

The Physics of Heavy Hydrogen Isotope. — The outstanding use to which the heavy hydrogen isotope has been put in research in the physical laboratory is as a bombarding agent in atomic transmutation. Early in July, Lewis, Lawrence and Livingstone (*Phys. Rev.,* 43, 55, 1933) showed that heavy hydrogen nuclei, H^2+, were markedly more efficient than protons in producing atomic disintegrations, notably of lithium. It was shown that transmutations involving higher yields of atomic energy were obtained than was the case with protons. An intensive study of these disintegrations has been carried out during the past summer at the Cavendish Laboratory in Cambridge under the direction of Lord Rutherford by Oliphant and Kinsey and by Dee and Walton (*Proc. Roy. Soc.,* 141, 722, 733, 1933). An improvement of technique has permitted the paths of the disintegrating fragments to be revealed as cloud tracks in a Wilson expansion chamber, which can then be recorded photographically. The several methods of study lead to two alternative disintegration processes with Li^6 and Li^7 respectively. They may be represented by the equations

$$Li^6+H^2=2He^4$$

$$\text{and } Li^7+H^2=2He^4+n^1$$

where n^1 represents the newly discovered neutron. The second process was of interest in that it could possibly have given the hypothetical isotope of helium He^5. This was not found. Instead, the energetic data obtained are consistent with the mechanism outlined in the equation set forth above. The first process gives rise to two helium nuclei with very long ranges (13.2 cm.) in air. It is suggested by the Cambridge workers that the production of these long range particles by bombardment of lithium (6) is a very sensitive test for H^2, and that it is possible to use it as an analytical method for following the concentration by electrolysis.

The spectroscopy of heavy hydrogen and its compounds is another important phase of the physical research. Lewis and Ashley (*Phys. Rev.*, 43, 770, 837, 1933) found that transitions involving the even rotational levels are more intense than those involving the odd. They conclude that the spin is 2/2 or twice the spin of the light isotope. Ballard and White (*Phys. Rev.*, 43, 941, 1933) investigated the Lyman series in the heavy hydrogen spectrum and found good agreement between the experimental and calculated isotope shift. The results are given of spectral observations on the OH^2 bands in emission by Johnston and Dawson (*Naturwiss.*, 21, 495, 1933) and the bands in the water vapor discharge tube (Shaw and Gibbs) and the infra-red bands of acetylene molecules containing either one or two atoms of heavy hydrogen (Randall and Barker) are announced for communication to the December meeting of the Physical Society. Other work on the NH^2 bands is known to be in progress.

Nomenclature.—Urey, Murphy and Brickwedde who first observed the heavy isotope spectroscopically, have proposed that the two isotopes be known as protium (H^1) and deuterium (H^2). These names will permit the formation of the usual prefixes and suffixes in common use in chemistry. The symbol D could also be used to advantage instead of H^2. For the heavy hydrogen ion (H^2+ or $D+$) Lewis has proposed the name deuton analogous to the proton.

The Isotope H^3. — Should a third isotope (H^3) be discovered, Urey, Murphy and Brickwedde recommend the name tritium for it. Lewis and Spedding have made a special search for this isotope in deuterium concentrates but have concluded that it cannot be present in ordinary hydrogen to the extent of one part in 6,000,000. On the other hand, Latimer and Young (*Phys. Rev.*, 44, 690, 1933) using the Alison magneto-optic effect and a water containing 2 to 4 per cent deuterium find a minimum which they assign to the presence of H^3.

Methods of Concentration. — The electrolytic method of concentration has proved so fruitful in yield that no alternatives can yet approach it in effectiveness. Cremer and Polanyi (*Z. Physik. Chem.*, 19B, 443, 1932) attempted without success to fractionate hydrogen by causing it to react catalytically with the unsaturated organic compound styrene. Taylor, Gould and Bleakney (*Phys. Rev.*, 43, 456, 1933) secured a five-fold enrichment of the heavy isotope by a two-stage desorption from absorbent charcoal. The method of concentration by fractional evaporation of liquid hydrogen has been very painstakingly studied by Keesom, van Dijk and Haantjes (*Proc. Acad. Sci. Amst.*, 36, 248, 1933). Forty litres of liquid hydrogen was fractionally evaporated until only two litres of *gas* was left. This had a density 1.51 per cent larger than that of ordinary hydrogen and contained therefore 3 per cent by volume of H^1H^2. Lewis and Cornish (*J. Am. Chem. Soc.*, 55, 2616, 1933) have employed a 20-foot fractionating column for the fractionation of water. Concentrations of only 70 to 80 parts per million of heavy water over the normal were secured. Fractionation at reduced pressures appeared to offer more favorable chances of concentration. Washburn and Smith (*J. Chem. Phys.*, 1, 426, 1933) used a 35-foot rectifying column. The initial 200 cc. and final 100 cc. of 10 litres differed in density by 65 parts per million. Adsorption of water by active charcoal produced a change of only 6.7 parts per million. Diffusion of gases through membranes, for example, palladium is being studied, with positive but thus far with results which are not too encouraging.

Mechanism of Electrolytic Separation.—A communication by Bernal and Fowler (*J. Chem. Phys.*, 1, 515, 1933) suggests that the mechanism of conduction of hydrogen ions through water is not by the normally assumed bodily transport through the solution, but occurs by a process of proton jumps from one water molecule to the neighbor when the configuration of the two molecules is favorable. In this way the abnormally high mobility of the hydrogen ions can be explained. On this basis the effective mobility of the H^1 ion should be about 5 times that of the H^2 ion in aqueous solution and hence might be of importance in the separation by electrolysis. The experimental mobilities already cited are not in agreement with this theoretical result and hence the cause of the separation has been sought elsewhere.

Considerations based upon zero point energy differences between heavy and light hydrogen have been stressed by Eyring and his co-workers (*Proc. Nat. Acad. Sci.*, 19, 78, 1933; *J. Chem. Phys.*, 1, 345, 1933). In the most recent view (*J. Am. Chem. Soc.*, Dec. 1933) Eyring and Topley see the separation as dependent on the different rates of decomposition of the hydrated ions of hydrogen and heavy hydrogen, due to differences in zero point energy of these species.

Other Compounds of Heavy Hydrogen.—Other compounds should show the divergencies in physical properties that heavy water has revealed. The only example thus far known is the case of heavy ammonia, a sample containing 99 per cent of the hydrogen as heavy isotope having, according to Taylor and Jungers, a freezing point 3.8° higher than ordinary ammonia and a boiling point 2.6° higher. Its density relative to that of ordinary ammonia is 1.174. The absorption spectrum of the compound is similar to but distinct from that of ordinary ammonia and, with mixed ammonias containing both heavy and light hydrogen, the spectrum is more complex. Heavy acetylene is being studied and such molecules as heavy methane are being prepared. These substances will be of great utility in the study of Raman spectra and infra-red spectroscopy since the heavy hydrogen will be an effective "indicator" for unravelling the complexities inherent in such work.

Conclusion.—The emphasis placed in this report on the problem of heavy hydrogen isotopes has resulted in the exclusion of much that is worthy of record in other fields. The writer feels, however, that the developments recorded are of such fundamental importance not only in chemistry but also in allied sciences that it was advantageous to focus attention entirely on the issue. No disparagement of work not reported is implied or intended.

ORGANIC CHEMISTRY

By Charles D. Hurd

Professor, Northwestern University

NONANE FROM PLANTS

Until this year, *n*-heptane was the only liquid paraffin hydrocarbon definitely identified as a plant constituent. Its origin was the Jeffrey pine. This year, Bogert and Marion have identified another such hydrocarbon, namely, *n*-nonane from volatile oil of the bushy, North Carolina plant *Samothra gentianoides L.* Nonane was found to represent about one-fifth of this oil.

ADDITION OF REAGENTS TO UNSATURATED COMPOUNDS

Uncertainty has long existed concerning the direction of addition of hydrogen bromide to various unsaturated compounds. For example, many cases are on record where, in the addition of HBr *to* $XCH=CHY$, one reliable investigator has reported the product to be $XCH_2\text{-}CHYBr$ whereas another equally reliable worker has reported $XCHBr\text{-}CH_2Y$. This question has interested chemists because of its bearing on the relative electronegativities of X and Y.

Kharasch and co-workers have described some very interesting experiments in this field. They have demonstrated that both types of addition are correct depending on the experimental conditions. Traces of peroxides are the responsible factor. In the presence of benzoyl peroxide, propylene and hydrogen bromide give rise to normal propyl bromide whereas in its absence the product is isopropyl bromide. Similarly, peroxides cause vinyl bromide, $CH_2{=}CHBr$, to yield ethylene bromide, $CH_2Br\text{-}CH_2Br$, whereas the customary product otherwise is ethylidene bromide, CH_3CHBr_2. Finally, allyl bromide, $CH_2{=}CHCH_2Br$, gives 1,3-dibromopropane, $BrCH_2CH_2CH_2Br$, when traces of peroxides are present but the 1,2-isomer, $CH_3CHBrCH_2Br$, results when they are excluded rigorously.

ALIPHATIC REARRANGEMENTS

Alcohols are classified as primary, secondary or tertiary if there are respectively one-, two- or three-carbon-containing groups attached to the alcohol nucleus. Thus, primary alcohols are $R\text{-}\overset{H}{\underset{H}{C}}OH$; *sec*-alcohols, $R\text{-}\overset{H}{\underset{R}{C}}OH$; *tert*-alcohols, R_3COH, "R" being the conventional abbreviation for an organic substituent or "radical." Analogously, secondary radicals refer to the R_2CH— configuration and tertiary radicals to R_3C—.

A well known reaction of alcohols, which occurs easiest with tertiary alcohols is the change into olefins by loss of the elements of water. Usually it is regarded that only these atoms of an alcohol are involved in such dehydrations:

$$>CH\text{-}C(OH) \longleftrightarrow\, >C{=}C< + H_2O,$$

Whitmore and collaborators have given this reaction extensive study. They found that tertiary alcohols possessing quite complicated structures followed this "normal type" of dehydration quite regularly. This was not the case, however, with primary or secondary alcohols if there was a tertiary radical attached to the alcohol-carbon. In other words, an alcohol of the type $CH_3\text{-}CHOH\text{-}CR_3$ may be expected to change more readily into $CH_3\text{-}CR{=}CR_2$ by rearrangement than into $CH_2{=}CH\text{-}CR_3$ by normal dehydration. In the cases studied the relative yields of the two products respectively were about 30 to 1.

In these *sec*-alcohols and in primary alcohols, $R_3C\text{-}CH_2OH$, wherein some of the R-groups are methyl and others butyl it was found that the butyl "wanders" more readily than the methyl. The means of establishing such a fact is of interest. An actual case was that of $Me_2CBu\text{-}CH_2OH$. It might change, for example, into $Me_2C{=}CHBu$ or into $MeCBu{=}CHMe$. These two olefins, as such, would be nearly indistinguishable but by the use of ozone each was cut into two smaller, identifiable, oxygen-containing compounds. The split would come at the double bond. The first compound would give rise to valeraldehyde ($BuCHO$) and the second to acetaldehyde ($MeCHO$). The ratio of these compounds tells the ratio of the original olefins.

The fact that a normal dehydration occurred in a *sec*-alcohol such as $CH_3\text{-}CHOH\text{-}CH_2\text{-}CMe_3$ demonstrates the necessity of having the tertiary radical directly attached to the alcohol carbon if rearrangement is to occur. A means of preparing olefins without rearrangement is to convert the alcohols to their xanthates and to pyrolyze the latter. In this way, isopropylethylene may be made from isopentyl alcohol whereas trimethylethylene is the product otherwise.

This study has given rise to some interesting syntheses: tetramethylmethane (in 50% yield) from *tert*-butyl chloride and methylmagnesium chloride; *tert*-butylchloromethane by the direct chlorination of tetramethylmethane; hexamethylethane (in 50% yield) from pentamethylethyl bromide and dimethylzinc; isobutyraldehyde and methyl isopropyl ketone (both in 75% yields) by refluxing the dibromides of isobutylene or trimethylethylene with water.

THE VINYLACETYLENES

Two years ago, satisfactory directions were listed by Nieuwland for the polymerization of acetylene to vinylacetylene and divinylacetylene. These substances have furnished the basis for an extended series of investigations by Carothers and co-workers.

Since both of the materials contain the same $HC\equiv C$- group that is in acetylene, it would be anticipated that they would still have reactions typical of acetylene. The formation of sodium or magnesium derivatives which were capable of reaction with ketones to give tertiary alcohols confirmed this viewpoint. Sodium vinylacetylide also reacts normally with alkyl halides (or sulfates) to replace the sodium by alkyl: $CH_2{=}CH{-}C\equiv CNa + RX \rightarrow NaX + CH_2{=}CH{-}C\equiv CR$.

Chlorine, hydrogen chloride and hydrogen bromide have been added to these various vinylacetylenes. The HCl addition product to vinylacetylene is an allene of the structure $CH_2{=}C{=}CH{-}CH_2Cl$ (A). The chlorine atom in this compound is active and reacts in the normal way with salts, water and some Grignard reagents (such as benzylmagnesium chloride). Other Grignard reagents (as methylmagnesium bromide) gave an abnormal reaction which was similar to the effect produced by cuprous salts. The latter brought about a rearrangement of (A) to the easily-polymerizable Chloro- (or bromo-) butadiene, $CH_2{=}CCl{-}CH{=}CH_2$ (B). The chlorine addition products of (A) and (B) are interesting. The latter gives only the 1,3,4-trichloro derivative showing that the two Cl atoms added at the first and fourth position. The former gives both the 1,3,4 and also the 1,2,3-trichloro derivatives. In this case, chlorine adds normally at one or the other of the two adjacent double bonds.

One of the numerous derivatives from divinylacetylene possessed this unusual structure: $CH_2{=}C{=}C{=}CCl{-}CH{=}CH_2$. The sequence of three double bonds is rare, although not unknown, in chemistry. Its conjugate double bonds (*i.e.*, those separated by a single bond) were inert towards maleic anhydride. Usually in conjugated hydrocarbons addition occurs (the Diels-Alder reaction).

Hydrochloric acid adds twice to divinylacetylene, but each time the elements of H and Cl undergo a 1,4 type of addition until 1,3-dichloro-2,4-hexadiene is produced. Also, it ha been shown by Marvel that a mixtur of sulfuric and acetic acids gives ris to a similar effect, although in thi case there is a hydration (addition o H_2O) followed by production of a membered ring.

The most practical phase of th study is that which deals with th polymerization of these unsaturate chlorine compounds to rubber-like sul stances. Chlorobutadiene and brom butadiene change on standing int rubber-like masses about 700 time more rapidly than isoprene which the unit of ordinary rubber. A r lated pair of compounds with rapi and slow speeds of polymerization chloroethylene and propylene. Chlor ethylene and chlorobutadiene bot possess the $CH_2{=}CCl$- group. Prop lene and isoprene share the $CH_2{=}$ CMe- group. The chlorine (or br mine) atom seems essential for rap polymerization.

Four kinds of polymers, named ω, α and μ, are formed from chlor butadiene. The volatile β- and th granular ω-polymers are formed und conditions that lead to slow polymer zation (such as in the presence of i hibitors). The desirable polymers the rubber synthesis are the plast α-polymer which corresponds to ra rubber and the nonplastic μ-polym which corresponds to vulcanized ru ber. These are produced by rap polymerization. The fact that but diene and isoprene polymerize so mu more slowly than chlorobutadiene su gests that the older "synthetic ru ber" was inadequate because of th unavoidable presence of much β- a ω- polymers.

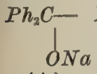
NEW SUGARS

This past year, W. C. Austin h succeeded in synthesizing one of th two remaining unknown aldohexose namely, *l*-allose. This sugar has s carbons in its molecule the same glucose. It was prepared from *l*- bose (a 5-carbon sugar) by the cya hydrin reaction. A by-product of th process, *l*-altrose, which has not be isolated as yet is the only sugar this series that remains to be d covered. The *l*-allose was obtained in crystalline form. Although twelve other hexoses are known there are but five others (*d*- and *l*-glucose and galactose, and *d*-mannose) which have been isolated as crystals; the others are sirups.

Prior to this study, Austin had to devise a method for the synthesis of the almost equally rare *l*-ribose which was needed. This was done in an effective way from *l*-arabinose, the pentose which is readily obtainable from natural gums (such as gum arabic or mesquite gum) by hydrolysis. In this process the arabinose was converted to its unsaturated derivative, arabinal. The latter, on treatment with benzoyl hydrogen peroxide, yielded the ribose.

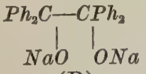
SODIUM KETYLS

Twenty years ago, Schlenk studied the reaction between sodium and benzophenone, $Ph_2C{=}O$. He obtained a blue colored addition product which reacted (A) with iodine to regenerate benzophenone and (B) with water to a mixture of benzophenone and benzohydrol. Schlenk regarded his sodium ketyl to possess structure (A) rather than (B) because it never yielded the pinacol (C) on hydrolysis.



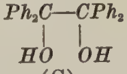
$$\underset{ONa}{Ph_2C}\text{—}$$

(A)



$$\underset{NaO}{Ph_2C}\text{—}\underset{ONa}{CPh_2}$$

(B)



$$\underset{HO}{Ph_2C}\text{—}\underset{OH}{CPh_2}$$

(C)

This viewpoint, uncontested for over two decades, has been proven to be wrong. Bachmann has demonstrated that the non-formation of pinacol was caused by alkalinity during hydrolysis. By performing the hydrolysis with acetic acid (rather than with water) Bachmann obtained an excellent yield of the pinacol. From this it follows that structure (B) is correct for the so-called sodium ketyls. This work clears up much of the mystery which has surrounded the metal ketyls.

In agreement with the above, Bachmann has found that a small amount of sodium alcoholate causes the pinacol to break down into benzophenone and benzohydrol. This information served in another connection to account for the easy and complete reduction of benzophenone to benzohydrol by sodium amalgam and alcohol. The intermediate step is the ketyl as before. The alcohol engages the sodium from the ketyl: $Ph_2CONa + C_2H_5OH \rightarrow Ph_2COH + C_2H_5ONa$. Then the Ph_2COH changes partly into benzohydrol and partly to benzophenone until all of the latter has been converted.

STEREOCHEMISTRY OF THE DIPHENYLS

Adams and co-workers have published an extensive series of articles on this chapter of stereochemistry. Their work has shown that the two, hexagon-shaped, phenyl rings in the diphenyls have a common axis of rotation. This is expressed in the figure: . In many compounds which possess this skeleton, the two hexagons may rotate freely but in others there is a resistance to such rotation. Compounds of the latter type are found to possess substituents (such as Br, NO_2, $COOH$, etc.) on three or four of the four corners of the hexagons next to the axis (*i.e.*, in positions 2 and 6 around the hexagon, starting with the axis as 1). It might be imagined that the group or groups on one nucleus lock horns with the groups on the other. Thus, an artificial type of asymmetry is created and the substance is "optically active" towards polarized light.

This "locking horns" effect is influenced by some groups more than others. The larger the size of the group, as determined by *x*-ray measurement, the greater is its influence. Adams has shown that among halogen substituents, the interfering effect is of the following order: $Br > Cl > F$. That is, a bromo-derivative is much more apt to be optically active than the corresponding fluoro-analog; or, the optically active forms of the fluoro derivatives are most easily racemized to the optically inert forms. The methoxyl group (OCH_3) resembles fluorine in this respect. In an extensive study of compounds with F and with OCH_3 substituents, it has been shown that the latter is somewhat the larger group.

Substituents in other positions than 2 or 6 cannot be expected to exert any such effect unless the 2 and 6 positions are occupied also. Adams has demonstrated, however, that a 5-nitro substituent does influence a 2-methoxyl substituent. Racemization is made more difficult. The reason for this effect is being studied. Possibly the two hexagons are no longer coaxial, or possibly the distance between the hexagons is shortened. Either of these factors would impart to the methoxyl group a greater interlocking effect.

CHEMISTS AS COLLEGE PRESIDENTS

Mention should be made in passing that at least two chemists were elected to college presidencies this pas year. H. E. Simmons, well know among rubber technologists, is no president of the University of Akron and James B. Conant is the new president of Harvard University. Conan has been one of the leaders of organic chemistry in America. Hi most recent interests have been on th study of oxidation-reduction potentials of organic compounds, very weal acids, trivalent carbon compounds and the structure of chlorophyll.

AGRICULTURAL CHEMISTRY

By W. W. Skinner

Bureau of Chemistry and Soils, Department of Agriculture

CARBOHYDRATES

Sugars.—Cox and his co-workers on the Sugar Fellowship at Mellon Institute are continuing their work on industrial uses for cane sugar. At the Amsterdam meeting of the International Commission for Methods of Sugar Analysis, which deals with all matters of international importance relating to analytical methods, standards, and physical constants, recommendations were made and adopted on thirteen subjects. Interest in levulose and inulin continues, as is shown by the work of Dykins and his co-workers on the production of artichoke syrup, and the paper by Yanovsky and Kingsbury on the solubility of inulin.

Starch.—Thurber reported on the chemical and physical properties of sweet potato starch, and Furry studied the question of stiffness produced in fabrics by different starches and sizing mixtures.

Honey.—Ramsey and Milum ascribed the darkening of honey to a chemical reaction between the natural sugars and amino acids, not to caramelization, while Lothrop and Gertler asserted that both amino acids and collodial constituents are involved.

ENZYMES

Unless the ideas of the Willstatte school explain the crystalline ureas of Sumner and the crystalline pepsi of Northrop, the time seems ripe fo the beginning of a new school of idea to explain enzyme behavior. Balls an Hale, by introducing two new method one for catalase and one for perox dase, have begun a new attack on ox dizing enzymes, apparently a ne school in America. As the methods ar for enzymes in dilute solution, comparable to their dilution *in vivo*, an are readily applicable to either enzym in the presence of the other, this wor appears outstanding at present.

The connection between the porphyrin and enzymic nuclei and enzymi activity, earlier recognized for certai enzymes of oxidation, may possibl hold in the case of hydrolytic enzyme as well. Thus Boyd reported tha hematoporphyrin, in presence of ligh and oxygen, is able to hydrolyze fibr nogen. The fact that light and oxyge are necessary may indicate that exte nal energy must be supplied to th reaction, as is apparently the case i the chlorophyll catalysis of the evol tion of rancidity in fats, observed b Coe. This latter work appears to b an important extension of our knowledge of the ferment character of chlorophyll. New information concerning the oxidative breakdown of sugars has resulted from work of Barron and Hastings, Baumberger, Jürgensen and Bardwell, which constitutes a marked advance in our knowledge of dehydrogenase action and appears to confirm in important respects the Thunberg-Wieland hypotheses. An activator of oxidation which applies to the respiration of the living cell has been described by Burke, Allison and Hoover. The intracellular dehydrogenases have also been studied by Collet, Reinberger and Little in a series of articles. An activator of glycolysis in bananas has been found by Nelson. The kinetics of enzyme action have been reviewed by Nelson in a very impartial and comprehensive article, and White has pointed out that a theory of heterogenous catalysis is mathematically just as compatible with the known facts of enzyme hydrolysis as a theory of homogenous catalysis. Many statistical and analytical researches of great ultimate importance in explaining the relation of ferments to disease, ripening, and metabolism in general have appeared but it is impossible to cite these individually.

FOOD RESEARCH

Cereal Chemistry. — Freeman and Gortner studied the gums of durum, rye and barley flours and found that they contain no hexoses or hexose uronic acid, but are largly polymers of pentoses admixed with proteins. The pentose sugars formed by hydrolysis are probably mixtures of xylose and arabinose. Durum flour gum, however, is apparently a polymer of xylan alone. Reed and Bailey studied the effects of ultra-violet light upon baked products and showed that crackers irradiated with a quartz mercury-vapor lamp have a certain anti-rachitic potency imparted to them, and that crackers baked in the laboratory with irradiated shortening carry their antirachitic potency through the fermentation and baking processes. In their study of rachitogenic rations consisting of yellow corn, wheat gluten, calcium carbonate and salt, Holmes and Tripp showed that the yellow corn varies appreciably in protein, ash, calcium and phosphorus content and in $Ca:P$ ratio, as well as in vitamin *A* potency.

Fruits and Vegetables. — Nelson, Mottern and Eddy published on the nitrogenous constituents of orange juice, having identified stachydrine, arginine, choline, asparagine and aspartic acid. Pickett found that the juices from frozen fruits have greater titratable acidity than juices from the fresh fruits, due apparently to the increased permeability of the cells upon freezing. Baier and Stevens advocated the use of concentrated lemon juice as a substitute for citric acid in many food products, and Kohman and Sanborn reported upon the use of citric acid in the form of lemon juice to inhibit corrosion in canned dried prunes. Saywell and Cruess made a comparative study of the composition of canning tomatoes, finding variations not only between Eastern and Western tomatoes, but between those grown in northern and southern California.

Rancidity.—The study of rancidity in oil bearing foods and food ingredients has been approached from various angles. Greenbank and Holm discussed the photochemical oxidation of cottonseed oil; Kilgore studied the development of peroxides in oils under storage conditions; King, Roscheu and Irwin developed a simplified method for evaluating lard for stability; Royce further studied the use of methylene blue as an oxidation-reduction indicator with vegetable shortenings, and Grettie suggested gum guaiac as an antioxidant in bakery goods and stock feeds.

SURFACE COATINGS AND PIGMENTS OF PLANTS

Markley and Sando reported quantitative variation of the constituents of the cuticle of apples during growth and storage and as a result of the application of sprays. Hoyl and Larsen re-investigated the acetone extract of dried spinach and identified two sterols and the alcohol n-tetracosanol. Link and Walker isolated catechol from the outer scales of pigmented onions. In the United States, most of the work on plant pigments has centered on the relationship of carotene to vitamin *A*. Ascham reported the isolation of carotene from pimiento peppers and studied its relation to their vitamin *A* content. Smith and Morgan studied the effect of light upon the vitamin *A* activity and the carotenoid content of fruits. A paper by Smith and Briggs relates to the vitamin *A* content of alfalfa as affected by exposure to sunshine in the curing process. Studies on the stability of carotene in various solvents were made by McConald and by Baumann and Steenbock.

NUTRITION

Proteins and Amino Acids. — Of particular interest has been the work of Jackson and Block, who found that cystine or methionine alone among a wide variety of amino acids cause a distinctly specific growth response when fed as a supplement to the basal diet. Duvigneaud and co-workers isolated methionine from casein by tryptic digestion, and converted methionine into the next higher homologue of cystine, naming the new compound homocystine. They further showed that both *d*- and *l*-tryptophane are readily available for supporting growth, but acetyl-*d*-tryptophane has not this power. Berg and Potgeiter found that the racemic tryptophane possesses almost the same ability to supplement a tryptophane-deficient basal diet, for the purpose of growth, as the naturally occurring laevo form. Studies by Csonka and Jones on the proteins of 10 different varieties of soy beans have showed that not all varieties contain the same quantities of the nutritionally-essential amino acids. Julian and Rose found that proline is not a nutritionally-essential amino acid. Results with hydroxy-proline were inconclusive. Czarnetsky and Schmidt isolated the amino acid norleucine in 11 per cent yield from spinal cord and established its identity with synthetic norleucine.

Vitamins.—Steenbock and Kletzien found that chickens react quite differently when fed irradiated yeast and irradiated ergosterol as sources of vitamin *D* than when fed natural fish oils. Vitamin *D* in irradiated ergosterol is different from that in cod liver oil, 1 per cent cod liver oil being equivalent in vitamin *D* potency to 40 to 120 per cent irradiated ergosterol Working with winesap apples, Potter and Overholzer found that apples from trees receiving a complete fertilizer appear to be a better source of vitamin *C* than apples from trees not so fertilized. Experimental work conducted coöperatively by the Bureau o Fisheries and the Bureau of Chemistry and Soils showed that burbot liver oi prepared under commercial condition has chemical and physical characteristics similar to those of cod liver oil and is from 3 to 4 times as potent i vitamin *D*, and from 4 to 10 times a potent in vitamin *A*. Eliot, Nelson Souther, and Cary demonstrated th value of salmon oil in the treatment o infantile rickets.

INSECTICIDES

Rotenone.—Having established th structural formula of rotenone, La Forge and Haller studied the synthesis of numerous compounds related t it, with the object of ultimately synthesizing rotenone itself. The searc for other plants containing rotenon has been continued. Clark showed to be present, with related compound in *Cracca virginiana*, and Jones ident fied it in a species of *Spatholobu* from India. Gnadinger and Co claim to have shown that rotenon is not an effective addition to th ordinary type of fly spray consistin of kerosene extracts of pyrethrum However, Badertscher came to th contrary decision, and Richardso showed that derris extracts in ker sene are toxic to flies and add to th toxicity of pyrethrum extracts whe combined with them.

Pyrethrum.—Wilcoxon and Har zell published a method of preparin pure pyrethrins, based on differenc of solubility in petroleum ether. Gna inger and Corl showed that pyrethr lon and methyl pyrethrolon not on do not interfere with their metho of estimating the pyrethrins but act ally do not occur in pyrethrum flo ers.

Spray Residues.—The recent increase of interest in the question of poisonous residues upon sprayed or dusted fruits and vegetables, caused by the adoption of tolerances for lead and fluorine, has produced great activity in this field. DeEds and McClure issued compilations of published information concerning the toxicity of fluorine and its natural occurrence in foodstuffs. Willard and Winter devised a new method of determining minute amounts of fluorine, involving their distillation as hydrofluorosilicic acid, which promises to be of great service. Various other new and modified methods for both large and small amounts of fluorine were published. It now appears certain that the determination of fluorine in spray residues will soon be on a thoroughly satisfactory basis. The development of methods for the determination of lead in spray residues also progressed greatly during the past year. Several new procedures were worked out by chemists of the Food and Drug Administration and of the Bureau of Chemistry and Soils, but so far only mimeographed sheets describing them have been issued. The suggestion was made that selenium compounds be tried as insecticides, but a note of warning has already been sounded by Nelson, Hurd-Karrer and Robinson, who point out that selenium is readily absorbed from the soil by growing plants, so that merely removing spray residue would be ineffective as a means of preventing possible ill effects from the ingestion of selenium compounds.

NAVAL STORES

A new camphor synthesis, by way of iso-bornylaniline and camphoranil, reported by Ritter is of scientific interest and is also of possible economic significance, as is Palkin's article on the component distribution trend in commercial turpentine still operation. LaLande gave a detailed study of the well known Lieberman color reaction and presented supporting evidence of the existence of the m-menthadiene grouping in part of the abietic acid molecule. Kirth and Sherrard's work on the distribution of ether extractive in turpentine slash-pine trees is of interest in connection with making white paper from young slash pine.

PAPER AND CELLULOSE

Gortner and McNair studied alpha-cellulose content in eight different kinds of wood. The Forest Products Laboratory reported a pulping process and a two-stage chlorination-hypochlorite bleaching method for the production of light-colored sulphate pulp. Lewis published two articles on the relative stabilities of rag and purified sulphite pulps. Kimberly and Emley reported studies of paper from a number of identical books stored in city and county libraries and confirmed the findings of others that papers exposed to air having a relatively high sulphur dioxide gas content deteriorate more rapidly than papers not subjected to such exposure. Doree's book *The Methods of Cellulose Chemistry* is a valuable contribution to analytical methods for the cellulose industries and cellulose research workers.

HIDES, TANNING MATERIALS AND LEATHER

Moore continued his detailed, systematic study of the removal of hair from hides by liming. Beek made a further contribution to our knowledge of the structure of collagen, the leather-making substance of hides. Page, working with wattle bark tannin, discussed the groups of the collagen molecule with which the fixed tannin and combined water solubles probably react in forming leather. Bowker and Wallace reported on the influence of the effective acidity of leather upon its deterioration. Their findings are quite opposed to the rather firmly fixed views that leathers made with pyrogallol tannins are more durable than those made with catechol tannins.

XXI. CHEMISTRY AND PHYSICS

ELECTROCHEMISTRY

By Colin G. Fink

Professor, Columbia University

THE ELECTRIC FURNACE AND ITS PRODUCTS

The Carbide and Carbon Chemicals Corporation received in December, 1933, from the McGraw-Hill Publishing Corporation the ''Award for Chemical Achievement'' for contributing ''most since January, 1930, to the advance of chemical industry and of the chemical engineering profession.'' Starting out with limestone and coke, and reacting these in the electric furnace to form calcium carbide, thereupon reacting this with water to form the familiar acetylene and then, with acetylene as a new basis, producing a wide variety of products—alcohols, solvents, gums, etc.—never before equalled in the history of chemistry. The Carbide organization established a new synthetic, aliphatic, chemical industry in the United States which ''in but three years (the awful years of the depression) has risen to a position of world leadership.'' Vinylite is the trade name of the new ''resin'' produced by the Carbide company which has found a thousand and one applications: unbreakable water tumblers, wall panels, phonograph records, floor tiles, translucent light fixtures, door knobs, denture castings, automobile steering wheels, etc. The world-wide depression has repeatedly emphasized that in spite of all predictions to the contrary, the public demand is invariably kindled when a new and attractive product is put on the market.

A highly gratifying development during 1933 was the world-wide recognition of the outstanding advantages of high-frequency inductive heating for special steel alloys. Dr. E. F. Northrup of Trenton, N. J., is very largely responsible for the commercial success of the high-frequency electric furnace.

C. C. Schwegler of the Dow Chemical Company is the author of a new electric furnace—an improvement on the Taylor type—for the production of carbon bisulfide, one of the ver essential reagents for the manufactur of rayon—artificial silk.

T. F. Baily of Alliance, Ohio, developed a new electric furnace fo the production of steel direct fro ore. The top of the furnace is heated shaft: reducing gases pass upward through this shaft and, upo coming in contact with particles o ore, reduce these to metal that co lects in the bowel of the electri furnace.

The Electrometallurgical Compan of Niagara Falls discovered that th addition of small percentages of t tanium or columbium to high chrom nickel steels, such as ''18 and 8'' a used on the Chrysler Building, Ne York City, will make these steels muc more readily workable.

FUSED ELECTROLYTES

The chief products of fused sa electrolysis are aluminum, sodiu magnesium, beryllium, calcium an lithium. The year marks a decide increase in interest and applicati of metallic sodium. The synthesis o indigo is dependent upon metall sodium. Furthermore, in the man facture of the anti-knock compoun tetraethyl lead, sodium metal is employed. On account of its very hig heat conductivity, sodium metal being employed in increasing quant ties in machine parts that tend to he up during operation. Hollow ste sections are filled with sodium. Th the valves of aeroplane motors a ''sodium'' cooled. Finally, the n sodium vapor lamp has been install in several towns for street lightin The sodium lamp is more efficient th the tungsten lamp.

Beryllium has definitely establish its usefulness in copper-beryllium a loys. The alloy at present common used contains from 2 to 3 per cent the light metal. Thousands of sprin have been fabricated out of this allo the outstanding characteristic is t great resistance to fatigue. Contact clips, pins and plugs of electrical appliances constitute another important application of this alloy. In comparison with the older bronzes, the life of the appliances has been increased tenfold.

The aluminum industry records a widespread use of the anodic treatment and dyeing process, imparting to the surface of millions of articles fabricated out of aluminum a very pleasing and wear-resistant surface. Fink's process for aluminum plating steel has been carried out on a semicommercial scale. Many new uses for the product have been developed.

H. Osborg, experimenting with the lightest of all metals, lithium, discovered that he could produce a valuable alloy of nickel and lithium by codepositing the two metals from a fused halide bath.

AQUEOUS ELECTROLYTES

The one epoch-making discovery of 1933 that has aroused the keenest interest among scientists all over the world is that of H. C. Urey, F. G. Brickwedde and associates, of the existence of a hydrogen atom (deuterium) that weighs twice as much as the common one (protium), and that ordinary water is a mixture or solution of "light" water and "heavy" water. The two different waters are fractionated by electrolysis. Tobacco seeds moistened with the heavy water (composed of the heavy hydrogen isotope plus oxygen) refused to germinate whereas the same seeds moistened with the "light" water germinated as usual. There are a score of laboratories now researching on this "heavy" and "light" water and on the two hydrogen isotopes. It is already evident from the results published that this new heavy hydrogen is going to revolutionize much of our fundamental chemical knowledge. F. C. Mathers and L. Bateman have developed a method for electrolytically refining lead from a dithionic acid solution using beta naphthol plus glue as addition agent. Alfred Lima, Jr., worked out an electrochemical scheme for the clarification of turbid sugar solutions, using aluminum electrodes.

ELECTROPLATING

Rhodium plating has been adopted on a large scale. For instance, the search-light reflectors that guide the plane pilots in night flying from coast to coast are all rhodium-plated. Likewise the large reflectors of the Music Hall of Radio City are rhodium-plated. Fink and Lambros published their results on rhodium plating. They recommend the ammonium sulfate bath. Frederick H. Getman determined the normal electrode potential for tellurium and found this to be —0.5682 volts. The Bullard Company installed on a large scale their improved electrolytic method for cleaning steel parts. The old pickling methods appear to be doomed.

CORROSION

The Chicago Convention of the Electrochemical Society (September, 1933) was the occasion for the international convocation on corrosion, in particular, corrosion of steel. It is now universally accepted that the corrosion of metals is primarily an electrochemical process. One of the chief points emphasized at this meeting was that painting the surface of corrosion-resistant steels will extend their life many-fold, and that a painted stainless steel will far outlast a painted ordinary steel.

GASES

Aside from the development of the sodium vapor lamp, a host of new electric discharge lamps have been marketed. These lamps and devices have a wide variety of gas fillings,—neon, helium, mercury vapor, etc.,—and aside from their application in luminous signs they are used in television and for other special purposes. This development in discharge lamps marks a very definite turning point in large-scale manufacture of glass apparatus and appliances. M. C. Taylor and C. N. Richardson are producing hydrogen peroxide by subjecting a mixture of hydrogen, oxygen and mercury vapor to the action of a corona discharge.

XXI. CHEMISTRY AND PHYSICS

INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING

BY SIDNEY D. KIRKPATRICK

EDITOR, *Chemical & Metallurgical Engineering*

RESEARCH

Whether history records 1933 as marking the beginning of the process of industrial recovery or merely as a high-spot in the stubborn resistance against the forces of the depression, it is already evident that the year was one of many achievements in chemical research and chemical engineering technology. An analogy to war is particularly apt. As the seriousness of the long depression increased, industrial management marshalled all of its fighting forces. Operating economies and improved processes constituted the first line of defense and the burden of much of this effort fell on the shoulders of chemical engineers. Then, when commodity prices continued to decline, there came an increased emphasis on new products or radical improvements in quality and appearance of existing products. Again, working closely with the laboratory chemist, the chemical engineer was called upon to translate the results of research into commercial production with a minimum expenditure of time and money.

NEW PRODUCTS AND PROCESSES

Fundamentally, it was in the direction of new products and processes that most progress was made. The host of new chemical materials or improvements in old ones was dramatically presented at Chicago's inspiring Century of Progress Fair. The continuous surge of improvements in processes and equipment reached its climax in the Fourteenth National Exposition of the Chemical Industry, held in New York City, December, 1933. Without attempting to catalog all of these developments, there are perhaps a dozen that are worthy of brief mention.

WHITE PAPER FROM SOUTHERN PINES

Many years ago Dr. Charles H. Herty, universally revered and respected chemist of the Southland, laid the scientific foundation on which th naval stores industry of the Unite States has developed. More recentl he has carried on research lookin toward the utilization of these sam Georgia pines in the manufacture o paper. He was able to show that th trouble-making resin commonly foun in these woods was almost entirel confined to the heartwood of the olde trees. That occurring in the sapwoo was shown to be a pathological product secreted by the tree only in orde to heal its wounds. Working on thi clue, Dr. Herty proved that th younger trees are free from heartwoo and if freshly cut, they can be utilize for producing white paper and new print. With the support of the Stat of Georgia, supplemented by fund from the Chemical Foundation, Inc of New York, a research laborator and pilot plant were completed i 1932, and on May 1 and 2, 1933 large group of chemical and executiv members of the Technical Associatio of the American Pulp and Paper I dustry visited the plant at Savanna to witness the successful outcome the Herty experiment. It is too soo to predict the nature and extent the industrial development that is co fidently expected to follow this important research.

POTASH INDEPENDENCE

With the completion early in 193 of the first refinery for the productio of commercially pure potassium chlo ide from sylvinite mined at Carlsba N. M., and with the entry of a secon responsible enterprise in this territor there is every indication that th United States will shortly be entire independent of foreign countries f its potash supply. Water-soluble po ash salts have been known to exist the Permian basin since their disco ery in 1912 by Prof. J. A. Udden the University of Texas, but it w not until 1925 that private interes identified sylvite crystals in the dri ings from an abandoned oil well. Aided by the results of government prospecting, several groups entered the race for commercial exploitation. The first to be successful was the United States Potash Company which made its initial commercial shipment of crude mineral in January, 1931. Since that time it has consistently improved its mining operations and during the past year it constructed a refinery capable of handling 400 tons of fresh sylvinite per day. The two companies now on the ground have proved resources of more than 300 million tons of sylvinite containing in excess of 25 per cent of K_2O.

In the face of such an imposing natural resource, it is rather surprising that chemical engineering attention should still be directed toward byproduct potash recovery processes. Yet during 1933, the engineers of the Western Precipitation Company were able to apply an improved method of electrostatic precipitation and mechanical dust collection to the kiln gases from an Eastern cement plant and obtain a profitable recovery of about 12.5 tons per day of potash salts averaging over 25 per cent K_2O. Further, it was shown that materials so recovered can be sold locally for fertilizer use in competition with both foreign and domestic production.

MINING SULPHUR UNDER WATER

The greater part of the sulphur industry, with large stocks above ground, was resting on its oars as far as production was concerned during 1933. Shortly before the beginning of the year, however, one new producer, Jefferson Lake Oil Company, went into production with a novel process permitting the mining of sulphur from beneath the bed of Lake Peigneur, La. Wells are drilled from a barge and casings put down so as to shut water out of the hole. The actual mining, except for the fact that the hot water, air and sulphur must be piped over water, is very similar to that used in the earlier Frasch process plants.

SULPHURIC ACID RECOVERY

Petroleum refiners have employed various processes for recovering the sulphuric acid used in the chemical treatment of lubricants and motor fuels, but only very recently has anyone attempted to utilize the heavy acid sludges as raw material for sulphuric acid production by the contact process. The first commercial plant using the Hechenbleikner process for this purpose completed its first year of operation in June, 1933, with results that indicated an overall recovery of about 85 per cent. However, since additional sulphur may be used to make up the 15 per cent loss, it is possible to produce any desired quantity up to the capacity of the plant. A vanadium catalyst is used in the process. It would appear that the refiner who adopts the process becomes practically independent of other sources of acid supply.

BROMINE AND IODINE

The increasing popularity of ethyl gasoline placed a heavy burden on the suppliers of bromine for ethylene dibromide, one of the constituents of the anti-knock compound. The natural brine well sources in Michigan were at first supplemented by recovery from the bitterns in California, and in 1932 a large plant was built at Tulso, Okla., to extract this element from a deep well brine by an ingenious process of concentration, using waste heat from a neighboring oil refinery. In August, 1933, work was started on a unique plant at Kure Beach near Wilmington, N. C., where bromine will be recovered from sea water. The process developed by chemists and engineers in the Dow Chemical Company involves treatment of the sea water with enough chlorine to free the bromine which is then blown from the sea water by a current of air and captured with soda to form a concentrated solution of sodium bromide-bromate.

Paralleling the bromine development but on a much smaller scale, there has been an interesting activity pointing toward the development of a domestic source of iodine, previously supplied almost exclusively by the Chilean monopoly. Although imports have increased to almost dumping proportions and prices have continued to decline, three American plants are making a serious bid for our iodine business. Two in California recover the elements from oil well waste liquors and another at Shreveport, La., utilizes a local brine. These are our best insurance that iodine prices will never again soar to the $4 per lb. level the Chileans once demanded for a product for which it is estimated that domestic cost will eventually fall below $1 per lb.

A CERAMIC ADVANCE

One of the most interesting and important developments of recent years is a process for expelling air from the heavy clays used in the manufacture of chemical stoneware. This is effected by a machine that combines working, disintegration, vacuum and pressure operations. The remarkable improvement attained by de-airing results in increased strength of the ware, in increased density and freedom from the usual flaws.

SOAPLESS DETERGENTS

With the hard waters all too prevalent throughout the United States, ordinary soap usually leaves an unsightly scum due to the formation of insoluble lime and magnesium compounds. Research carried on in Germany since the war has not only proved that these insoluble soaps were caused by the presence of carboxyl radical in the fatty acids, but also demonstrated a means of making soaps in which these troublesome fatty acids were converted into the corresponding alcohols and then rendered soluble by treatment with sulphuric acid and soda solutions. The conversion to alcohols is effected by catalytic hydrogenation at high pressure and temperature. The resulting sulphated alcohols possess truly remarkable properties, lathering freely even in the hardest water. They have unusual penetrating power and since they do not leave behind a precipitation in insoluble soaps, they give superior results in cleansing fabrics of all kinds. During 1933 manufacture of these products was begun in the United States, and they are being sold for industrial purposes under the group name of ''Gardinols.'' A packaged form known as ''Drift'' was also introduced to be sold by grocers for use like ordinary household soap chips. Whether these new products will completely revolutionize the soap industry is open to question, but they undoubtedly point to an important trend.

WAX EXTRACTION

Paraffine wax must be removed from motor oils if they are to flow at low temperatures and give satisfactory lubrication under operating conditions. The older process was to chill the oil until the wax congealed and then to remove it by filtering under high pressures. In recent years chemical engineers have proved that a number of chemicals have the power of selectively dissolving out the wax and leaving the oil with all of its desirable constituents. Solvents being used for this purpose include nitrobenzol, phenol, trichlorethylene, dichlorethyl ether, and certain butyl alcohol derivatives, each of which is now sponsored by a different organization in the oil industry but all of which no doubt greatly improve the quality of motor oils as compared with the products of a few years ago.

PHOSPHORIC ACID VIA BLAST FURNACE

After nine years of costly and often discouraging research, the Victor Chemical Works announced to the American Institute of Chemical Engineers in June, 1933, that its Nashville, Tenn., plant was successfully applying the coal-fired blast furnace for the volatilization of phosphoric acid from phosphate rock. This furnace, which has an overall height of almost 100 feet, has a capacity in excess of 250,000 lbs. of P_2O_5 per day. It is charged with special briquets made from Tennessee phosphate rock, coke from Chattanooga or Birmingham, and silica gravel from nearby pits. Slag tapped from the furnace is sold for railroad ballast or converted into a special cellular product used for insulation and as a light weight aggregate for concrete. The ferro-phosphorous is converted to tri sodium phosphate which is also one of the several products made from the volatilized phosphoric acid condensed from the furnace fume. Special interest attaches to this process in view of the announced plan for the development of our phosphate resources by the Tennessee Valley Authority.

CORROSION RESISTING PLASTICS

Of the wide range of chemical products and materials introduced on a commercial scale in 1933, considerable attention was centered on the synthetic resin-asbestos compound known as Haveg, which is now widely used as a corrosion-resistant material of construction. Originally developed in Germany about 15 years ago and occasionally imported into the United States, it was not until manufacture started here early in 1933 that large equipment could be fabricated from it. At present tanks 9 ft. in diameter and 9 ft. in height are being made in solid, seamless and jointless units. Much larger vats and acid pickling tanks are made up of sections molded together and the joints filled with special acid-resisting cement. Haveg is resistant to practically all acids except nitric, to the principal organic solvents, to chlorine and the solutions commonly used in bleaching and dyeing textiles. In addition to tanks and vats, it is used in centrifugal and plunger pump bodies, pipes and fittings and such equipment as ventilator fans for removing corrosive vapors.

PLASTICS ENTER THE HOME

One of the featured scientific exhibits of Chicago's Century of Progress Exposition was a three-room apartment constructed completely of the new resin, Vinylite, which is made by the polymerization of vinyl compounds. Unlike many of the synthetic resins of which Bakelite is a good example, vinyl resins may be readily cast, molded, sheeted, extruded, or may be employed in solutions as lacquer. They are odorless, tasteless and chemically inert and are permanently thermoplastic, *i.e.*, they may be formed or reformed merely by heat and pressure application. Wall panels 8 ft. in height, 2½ ft. wide and 2 in. thick, weighing as much as 150 lbs., are readily cast from Vinylite. The resin may also be stamped into various forms such as combs and toothbrush handles. Ease of molding has made possible its use in the new, long-playing phonograph records in which the sound grooves are placed closer together than heretofore. Its toughness makes it possible to use a thinner and therefore less expensive record. Although still in an experimental stage as regards many of the larger-scale applications shown at Chicago, it is nevertheless apparent that Vinylite has already won a definite place for itself in the plastics field and may be expected to develop a much wider use.

RAYON SETS NEW RECORDS

Trends of 1933 in rayon technology were largely in the direction of higher spinning speeds and other cost-cutting measures resulting from the further ascendancy of bobbin over pit spinning. Finer deniers became even more important with filament sizes extending down almost into the range of natural silk. Low luster yarns continue to be in greatest demand. Acetate rayon increased absolutely although not relatively in tonnage. No new processes reached a point of commercial interest.

From the standpoint of production, 1933 was by far the most important year. According to estimates issued in September, 1933, by the *Textile World,* a total U. S. production for all types of 208,000,000 lbs. was indicated, representing an increase of 58 per cent over 1932 which had been the second largest year on record. Other estimates for world production suggested the probability of a 25 per cent increase over 1932 for the world as a whole.

MARKETS AND FOREIGN TRADE

The downward trend to chemical production which carried through 1932 was continued for the first four months of 1933 but from May forward improvement was marked with no let-up during the summer months. As a result, the higher rate of activity in the last eight months of the year brought total production to a point about 7 per cent above that for 1932 according to a comparison of the indexes compiled by *Chemical & Metallurgical Engineering.* Consumption of chemicals in the rayon industry established a new high record and noticeable improvement in demand over the preceding year was reported for the textile, glass, paint and varnish, and fertilizer industries.

Prices for chemicals weakened in the early part of the year but as consuming demand increased, values firmed up and the average for the year gained about 2 per cent over 1932 as far as quoted prices were concerned, with the actual increase somewhat higher if consideration is given to the extent to which quoted prices were disregarded in making sales in 1932. In the latter part of 1933, prices for important chemicals were affected by higher production costs as brought about by the terms of the chemical codes, and contracts calling for delivery over 1934 were written at levels higher than those which governed 1933 deliveries.

NEW FIELDS OF OPPORTUNITY

The depression demonstrated more clearly than ever before that the future of chemical engineering lies in two directions, namely (1) to extend its influence to older fields that have never accepted chemical technology in their production processes and (2) to create and participate in new industries such as aviation, air conditioning, brewing, distilling, electronics, to mention a few that have shown increased activity in recent months. In the latter fields there are many chemical problems to be solved and rich awards await their solution.

PHYSICS

By Forrest G. Tucker

Professor, Oberlin College

GENERAL

The outstanding achievement of the year was the experimental proof of the existence of a "positive electron." Significant advances were made in other fields, especially in the study of nuclear transmutations. A great mass of experimental data concerning cosmic rays was accumulated. This data, however, has not yet been analyzed and interpreted in a satisfactory manner, so a discussion of this domain is deferred.

THE POSITIVE ELECTRON

Late in 1932, Anderson, at the California Institute of Technology, announced (The American Year Book, 1932) that he had obtained evidence which suggested the existence of a particle with a ratio of charge to mass of the same order of magnitude as that of the electron, but carrying a positive instead of a negative charge. Further work by Anderson, and by several European investigators, has clearly demonstrated the existence of this new fundamental entity of the physical world. Following the suggestion of its discoverer, we shall refer to the particle as a positron, retaining the word electron for the particle with a negative charge.

The details of the discovery of the positron are given in the *Physical Review* (43, 491, 1933). On Aug. 2, 1932 while studying the tracks of the high speed particles that are ejected from matter when it is struck by cosmic rays, Anderson obtained a remarkable photograph, which is reproduced in the above article. This photograph shows the path of a fast particle which passed through a lead sheet, six millimeters thick. Since the photographs were made with the cloud expansion chamber in a strong magnetic field, the velocities of the particles can be calculated from the curvature of the tracks. Unfortunately, however, the direction of the motion cannot be definitely established by a study of the tracks, for a positively charged particle moving in one direction will curve in the same manner as a similar negatively charged particle moving in the opposite direction. In this particular photograph, the velocity on one side of the lead sheet corresponds to 63 million e-volts (electron-volts), and on the other side to 23 million e-volts. If the assumption is made that the particle has a negative charge, it is impossible to avoid the embarrassing conclusion that in passing through the lead sheet the electron gained energy equal to 40 million e-volts. Such behavior is contrary to all experimental and theoretical properties of the electron. The only plausible interpretation seems to be that the track is due to a positron moving in the opposite direction. The density of the track, and the ability of the particle to penetrate 6 millimeters of lead seems definitely to eliminate the hypothesis that the particle is a fast proton. Other possible explanations were considered by Anderson and rejected as beyond the range of probability.

Additional photographs by Anderson and by Blackett and Occhialini (*Proc. Roy. Soc.* A, 139, 169) show that the tracks due to positrons are usually accompanied by numerous other tracks due largely to electrons. Blackett reports that several photographs have been obtained showing more than twenty tracks. All of these tracks appear to diverge from some region in the material surrounding the expansion chamber, which suggests that a "shower" of particles is ejected when cosmic radiation passes through matter.

Since the positrons presumably come from atomic nuclei, various bombarding agents have been used in attempts to produce positron emission. I. Curie and F. Joliot (*Journal de Physique* [7], 4, 494) have observed positron emission from metals bombarded with high energy photons (gamma rays), or with alpha particles. Two sources of gamma radiation were used, the artificial gamma rays emitted from beryllium when it is bombarded with alpha particles and the gamma radiation from Thorium C″. The energy carried by a photon of the beryllium radiation is approximately 5 million e-volts, while that carried by gamma rays of thorium C″ is 2.65 million e-volts. With the beryllium radiation incident upon targets of copper, lead and uranium, both positrons and electrons were emitted. The number of positrons observed per 100 electrons was 18 for copper, 30 for lead, and 40 for uranium. The less energetic photons from thorium C″ gave only 8 positrons per 100 electrons. These facts suggest that the efficiency of positron emission increases with the energy of the bombarding photon and with the mass of the emitting nucleus. Positrons were also obtained from targets of aluminum, boron, and beryllium bombarded with the alpha particles of polonium. Apparently the neutrons from beryllium do not excite positron emission.

In all of the above experiments the existence of the positron is inferred from the direction of curvature of the cloud track produced when the particle moves in a strong magnetic field. These tracks enable us to calculate the ratio of charge to mass but do not give direct information concerning the magnitude of the charge or of the mass. It is highly desirable, therefore, that the deflection of the particles in an electric field be studied. According to a preliminary announcement, J. Thibaud (*Nature* 132, 480) has demonstrated that a negatively charged grid attracts the positrons, and that the deflection is of the same order of magnitude as that experienced by electrons moving near a positively charged grid. The positron, therefore, seems to be similar to the electron, except that the charge is positive instead of negative.

The experimental demonstration of the existence of positrons raises immediately the question of why they have hitherto eluded detection. Evidently they can exist as free particles only for very short intervals. The process by which they combine with electrons or nuclei, and disappear as distinct particles is of great importance from a theoretical point of view. In 1930 Dirac published his theory of electrons which suggested the existence of a few unoccupied quantum states of negative kinetic energy. These states or "holes" should behave as positively charged electrons, but should have a very limited life, since it is easy for an electron to jump down into an unoccupied state and cause the annihilation of the electron and positron, the energy of the two particles being radiated as two photons. A reversal of this process offers an attractive explanation of the production of positrons by high energy gamma ray photons. According to the theory, in the intense field of the nucleus the photon is converted into a positron and electron. This process is called internal conversion. Einstein's energy equation

$$\Delta E = C^2 \Delta M$$

where ΔE is the change in energy, ΔM is the change in mass, and C is the velocity of light enables us to calculate the kinetic energy of the "pair" formed by the internal conversion of a given photon. In the case of gamma rays from thorium C″, the energy of the photon is 2.65 million e-volts. The formation of the masses of the pair of particles requires 1.02 million e-volts leaving about 1.63 million e-volts for the total kinetic energy of the positron and electron.

Curie and Joliot actually found that the maximum kinetic energy of each particle in positron-electron pairs was approximately 800,000 e-volts, which gives numerical support to the internal conversion theory. Another interesting fact that gives weight to the theory is that an anomalous increase in the absorption of gamma rays occurs when the photon energy exceeds 1.1 million e-volts. The assumption that a certain fraction of the incident photons possessing energies greater than this minimum are converted into "pairs" would account for the observed effects. The importance of the conversion theory as an aid in interpreting cosmic ray absorption data is quite evident. Anderson (*Phys. Review* 44,406) has studied many cloud tracks of particles ejected by cosmic rays. Positrons and electrons were found in nearly equal numbers and their distributions in energy were similar. The majority of the particles bearing a positive charge were found to be positrons, and not protons. The results are in harmony with Millikan's hypothesis that the cosmic radiation consists largely of high energy photons, and suggest that the major part of the absorption of cosmic rays is by conversion into "pairs," the absorption by free electrons being relatively insignificant.

THE TRANSMUTATION OF ELEMENTS BY HIGH SPEED IONS

The pioneer work of Cockroft and Walton (The American Year Book, 1932) on transmutation of light elements by fast protons has been followed up and extended. In the Cavendish Laboratory, Lord Rutherford and his collaborators (*Proc. Roy. Soc.* A, 141, pp. 259 and 722) have improved the discharge tube with a consequent gain in the number of disintegration particles by a factor of 1000. A careful study of the alpha particles emitted when lithium is disintegrated by proton bombardment revealed the existence of three distinct groups of particles, having ranges of 0.65, 1.15 and 8.4 cms. From these ranges it is possible to determine the kinetic energies of the particles.

Shortly after the discovery of the heavy isotope of hydrogen (The American Year Book, 1932) G. N. Lewis of the University of California succeeded in producing "heavy" water, in which practically all of the hydrogen present consists of the heavy isotope (mass 2). Following the suggestion of Lewis and his collaborators, the nucleus of an atom of heavy hydrogen will be called a deuton. Through the generosity of Professor Lewis, several laboratories were supplied with heavy water, and thereby enabled to study the transmutations effected by high speed deutons. In Rutherford's experiments the deutons were separated by a transverse magnetic field from other positive ions present in the discharge. Consequently the effects observed were due entirely to the ions of the heavy hydrogen.

For accelerating potentials below 110 kilovolts the number of transmutation particles observed with a lithium target was less than the number observed under proton bombardment. At higher voltages, however, the efficiency of deutons in exciting nuclear transmutations increased rapidly, and at 180 kilovolts the number of particles observed was seven times the number observed with protons.

The energy distribution of the ejected alpha particles was quite different from that obtained with protons. With deuton excitation the alpha particles showed a continuous distribution of ranges up to 8 cms. of air and one distinct high energy group, with a range of 13.2 cms. This group constituted about 1/10 of the total number of particles observed. The fact that deutons give particles with a range of 13.2 cms. while the maximum range with protons is 8.4 cms. suggests a sensitive method of detecting the presence of heavy hydrogen in ordinary hydrogen.

The mechanism of the transmutation process which results in the ejection of alpha particles from lithium when struck by fast protons, is thought to be as follows: lithium (mass 7) + proton (mass 1) gives helium (mass 4) + helium (mass 4). In symbolic notation, this reaction is

$$ {}_3\mathrm{Li}^7 + {}_1\mathrm{H}^1 \longrightarrow {}_2\mathrm{He}^4 + {}_2\mathrm{HE}^4 $$

where the small digits at the upper right represent masses (in atomic weight units) and those at the lower left represent the positive charge on the respective nuclei, in terms of the electronic charge.

The validity of the above reaction process is supported by two independent types of evidence. First, Einstein's equation for the equivalence of mass and energy is satisfied. Second, the beautiful track photographs of Dee and Walton described below, show that momentum is conserved when the two alpha particles are ejected. According to recent measurements of Bainbridge, the masses of the nuclei involved in the reaction are lithium = 7.0130, proton = 1.0072, and alpha particle = 4.0011 referred to oxygen as having a mass of 16.000 atomic weight units. In the reaction there is a loss of mass of 0.0180 units. The gain in kinetic energy is 17.2 million e-volts, which by Einstein's equation is equivalent to a mass of 0.0184 units. The agreement is excellent and well within the limits of experimental error in the determination of the kinetic energy of the alpha particles. This direct experimental proof of the validity of Einstein's equation is in itself an important event. Furthermore, it establishes a firm foundation for future theoretical and experimental work on the structure of atomic nuclei. The reaction process giving rise to the short range particles has not yet been established.

The long range particles (13.2 cms.) observed when lithium is bombarded with deutons are attributed to the reaction

$$ {}_3\mathrm{Li}^6 + {}_1\mathrm{H}^2 \longrightarrow {}_2\mathrm{He}^4 + {}_2\mathrm{He}^4 $$

In this process also, Einstein's equation is satisfied. The particles with ranges varying continuously from 1 to 8 cms. are attributed by Rutherford to a reaction in which the nucleus of lithium (7) captures a deuton, and transforms it into a neutron and two alpha particles. That is,

$$ {}_3\mathrm{Li}^7 + {}_1\mathrm{H}^2 \longrightarrow 2\,{}_2\mathrm{He}^4 + {}_0\mathrm{N}^1 $$

where ${}_0\mathrm{N}^1$ is a neutron of unit mass and zero charge. By assuming that the two alpha particles have equal energies, and that the angle between them varies in a continuous manner, Rutherford was able to account for the group of particles with the continuous distribution of ranges.

In the experiments just described, the alpha particles were detected with an electrical counter. In order to examine the disintegration processes more completely, Dee and Walton (*Proc. Roy. Soc.* A, 141, 733) photographed the tracks of the ejected particles in a cloud expansion chamber. Their remarkable photographs constitute a mile-stone in the advance of experimental physics. The results corroborate the conclusions of Rutherford, in regard to the ranges of the particles. In addition, many photographs show two disintegration particles originating at the same point and having equal and opposite momenta. This constitutes very strong evidence in favor of the reaction process suggested above.

Similar photographs of the tracks of disintegration particles have been obtained by Kirchner at the University of Munich (*Physikalische Zeit.* 34, 777).

At the University of California, Lewis, Lawrence, and their associates have continued their work on transmutation by fast ions with notable success. At the present time, they are using bombarding ions of much higher energy than any other laboratory, having recently obtained deutons with energies of 3 million e-volts. Their results are summarized in several letters to the *Physical Review* (Vol. 43, pp. 304, 369. Vol. 44, pp. 55, 56; 781, 782). Under proton bombardment disintegration particles were observed from lithium, boron, and aluminum. The particles from aluminum had a maximum range of approximately 8 cms. of air. Using ions of the hydrogen molecule containing one "heavy" atom (H^1H^2) deutons with energies of 1.33 million e-volts were obtained. Various targets gave disintegration particles when struck by deutons of this energy, notably lithium, nitrogen, beryllium, aluminum, and magnesium. The ranges of the particles from lithium were in approximate agreement with the results of Rutherford. Other targets, especially those of the heavier elements showed no alpha particle emission. Every target, however, including gold and platinum yielded protons of about 18 cms. range. No protons were observed when the energy of the incident deutons was less than 800,000 e-volts. In order to account for this effect the authors assume that the deuton itself, in colliding with the target, breaks up into a proton and a neutron. This hypothesis is supported by the fact that the energy f the emitted protons increases linearly with the energy of the incident deutons.

Recently the presence of the neutrons has been demonstrated by observing the recoil protons from a lead-paraffin screen. The number of neutrons detected is in agreement with the hypothesis that the deuton disintegrates into a proton and neutron. From the observed ranges of the protons it appears that in the transformation process the liberated proton gains an amount of energy equal to 2.4 million e-volts in addition to the kinetic energy of the deuton. Since the neutron should acquire the same energy, 4.8 million e-volts appear to be released in the transformation. These energy values require the mass of the neutron to be 1.0006 atomic weight units rather than 1.0067 as suggested by Chadwick. Curie and Joliot, on the other hand suggest a mass of 1.012 units. Whether the mass of the neutron is greater or less than the mass of the proton is a problem of fundamental importance in the development of a theory of nuclear structure.

THE PRODUCTION OF NEUTRONS

In the pioneer experiments neutrons were produced by exposing a beryllium target to an intense beam of alpha particles from polonium. Crane and Lauritsen (*Phys. Rev.* 44, pp. 514, 692 and 783) have shown that neutrons are produced when beryllium or lithium is bombarded with positive ions having energies of 400,000 to 800,000 e-volts. Disintegrations were observed with helium ions, with protons and with deutons. With a beryllium target and fast deutons the efficiency of the process was 100 times as great as with helium ion bombardment.

THE PRECISION MEASUREMENTS OF ATOMIC MASSES

The experimental verification of Einstein's relation between mass and energy emphasizes the need of more precise determinations of the masses of atomic nuclei. The most precise direct method known at the present time is that developed by Bainbridge at the Bartol Research Foundation of the Franklin Institute, Swarthmore, Pa.

During the past year Bainbridge has published the following mass determinations: Hydrogen (1) 1.007775; hydrogen (2) 2.01363; beryllium (9) 9.0155; neon (20) 19.9967; boron (11) 11.0107; neon (22) 21.9947; lithium (6) 6.0145; and lithium (7) 7.0146. (*Phys. Rev.* 43; 103, 367, 424; 44; 56 and 57).

THE MAGNETIC MOMENT OF THE PROTON AND DEUTON

For the development of a satisfactory theory of nuclear structure and for the interpretation of the hyperfine structure of spectral lines it is essential to know the magnetic moment of the proton and deuton. These measurements have been made by Frisch and Stern (*Zeit, fur Physik,* 85, 4 and 17; 86, 132), using the method of deviation of a molecular beam in a nonhomogeneous transverse magnetic field. Theoretical considerations indicated that the proton magnetic moment should be 1/1840 times that of the electron. The actual experimental value was about 2.5 times the predicted result.

The results obtained with heavy hydrogen, which the authors insist are only preliminary, indicate that the magnetic moment of the deuton is definitely less than that of the proton. The nuclear spin of the heavy hydrogen atom, however, as determined from band spectra, is twice that of ordinary hydrogen.

EXTREMELY LOW TEMPERATURES

Until recently the lowest temperature ever attained in the laboratory was 0.71 degrees absolute. This was reached by Keesom in the cryogenic laboratory at Leyden, Holland, by evaporating liquid helium under reduced pressure. The lowest limit by this method had apparently been attained.

In 1926 Debye pointed out that if a magnetized paramagnetic body is demagnetised adiabatically its temperature should decrease. W. J. de Haas (*Nature,* Sept. 1933) performed the suggested experiment with cerium fluoride. The substance was cooled with liquid helium and then strongly magnetized. When the magnetic field was removed the fluoride was cooled to a temperature below 0.27 degrees absolute. In July, 1933, using cerium ethyl sulphate a temperature below 0.085 degrees was reached. The temperatures are estimated from the magnetic properties of the cooling substance itself. In regard to the possibilities of the method, Professor de Haas says: ''It is possible that with the same experimental arrangement much lower temperatures can be reached. The choice of the right substance will decide further results. I am convinced that with the above described arrangement the theoretical limit can be reached.''

NOBEL PRIZE AWARDS

The Nobel prize for physics for 1932 has been awarded to Prof. W. Heisenberg of the University of Leipzig for his pioneer work on quantum mechanics.

The 1933 prize was awarded jointly to Prof. P. A. M. Dirac, Lucasian professor of mathematics in the University of Cambridge, and Prof. E. Schrödinger, formerly in the University of Berlin, now at Magdalen College, Oxford. Schrödinger is responsible for the development of wave mechanics into a coherent theory, while Dirac devised a new and independent quantum mechanics.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Chemical Society, 728 Mills Bldg., Washington, D. C

American Electrochemical Society, Broadway and 117th Street, New York City.

American Institute of Chemical Engineers, Bellevue Court Building, Philadelphia, Pa.

American Institute of Physics, 11 E. 38th St., New York City.

American Microscopal Society, University of Illinois, Urbana, Ill.

American Physical Society, Columbia University, New York City.

American Society of Biological Chemists, University of Michigan, Ann Arbor, Mich.

Association of Official Agricultural Chemists, Box 290, Penn. Ave. Station, Washington, D. C.

Copper and Brass Research Assn., 25 Broadway, New York City.

National Research Council, 29 W. 39th St., New York City.

Society of Chemical Industry, Pratt Institute, Brooklyn, N. Y.

Synthetic Organic Chemical Manufacturers Assn., 260 W. Broadway, New York City.

DIVISION XXII

BIOLOGICAL SCIENCES

ORGANIC EVOLUTION

By G. Kingsley Noble

American Museum of Natural History

CAULLERY ON EVOLUTIONARY CHANGE

The mechanism of evolutionary change in the animal and plant worlds is still a matter of controversy in spite of the enormous mass of experimental data which has been made available during the past 33 years. Prof. Maurice Caullery, University of Paris, has attempted to sum up the present theories of evolution in the Joseph Leidy Memorial Lecture presented during 1933 in Philadelphia. Although it is now definitely established that various external agents, such as *x*-ray, radium, ultraviolet, heat, etc., may under certain circumstances induce germinal changes, these mutations, whether spontaneous or induced, are practically never adaptive responses. This fact has not deterred Fisher, Vavilov, Morgan, Hurst and Wright, in their various addresses during the last International Congress of Genetics held at Ithaca, from concluding that mutations were the material for evolutionary change. But Caullery lays aside all the evidence presented by these investigators and concludes that evolutionary change is highly adaptive and therefore is something other than mutation. Caullery points to the fact that the only blind salamanders live in caves. Since one of these, *Typhlotriton spelaeus,* will develop normal eyes if reared in light, the environment in this case has not yet produced a permanent effect. Typhlotriton, according to Caullery, represents an intermediate step in adaptive response of an animal's germ plasm to its environment. Caullery overlooks the fact that no epigean species of salamander has been reared for any great length of time in the dark and it is possible that other species would become blind during one generation if they were not given the stimulus of light. In brief, the condition in Typhlotriton may be widespread among salamanders but only shows up in the forms which have taken to cave life. The subject, in short, is in need of further investigation.

PARALLEL MUTATIONS

Aristogenes.—Osborn in his Sedgwick Lecture, presented towards the close of the year, also lays great emphasis on the fact that evolution appears to be highly adaptive. The new characters, which Osborn formerly called "rectigradations" he proposed to call "aristogenes" at the British Association meeting in 1931. In his 1933 address he shows that these aristogenes develop more slowly in phylogeny than the allometrons which he defines as changes in proportions of parts. Aristogenes, or rectigradations, have previously been called parallel mutations. Thus, Vavilov showed in 1922 many remarkable cases of parallelism in many species of plants which were definitely known to be due to mutations. Similarly, Wexelsen, 1933 (*Hereditas* XVIII), has shown that leg feathering practically identical to that of the "booted" condition in fowl, occurs also in pigeons where its mutational character is fully identified.

Animals. — Many other instances of parallel mutation are well known. The coat colors of mammals often parallel one another as albinism in widely different types of animals. But Osborn's aristogenes differ from these cases in that there occurs a progressive improvement of the characters in time. In this connection it is interesting that Castle (*J. Mammalogy* XIV) has pointed out that mammalian genetics has not yet elucidated all the steps in the origin of any species of mammal. Although this statement may seem to indicate that Caullery and Osborn were right in searching for evolutionary change in some other process than mutation, Wright, 1932 (*Proc. Sixth Inter. Cong. of Genetics* 1) has shown that this discrepancy is more apparent that real. Wright has shown statistically that an excessive rate of mutation which occurs in many laboratory stocks gives an array of freaks, not evolution. He finds that the evolution of the horse as described by Osborn and others is in full accord with evolution by mutation as he has seen this occurring in his guinea-pigs.

Plants. — Among plants, actual origin of species by mutation or at least by chromosomal changes, has been witnessed more frequently than in animals. Hurst stated before the International Genetics Congress that 20 new genetical species and 3 new genetical genera of plants had been created experimentally during the last decade. More recently, Ruggles Gates, 1933 (*J. Linn. Soc. Bot.* XLIV), has summarized our knowledge of the evolution of the evening primrose which forms the basis of the classical study by deVries. He finds that the subgenus of *Oenothera Lemarkiana*, came from a stock in Central America and that a series of dominant mutations occurred when the genus spread northward at the end of the ice age. Interspecific crossing occurred during migration. There is also evidence that dominant mutations arose independently in different lines of descent. The species with cruciate petals, for instance, constituted a series of independent parallel mutations. He also finds that interchange of segments between the chromosomes was the cause of the appearance of certain of the new types, but this type of chromosomal disturbance played a smaller part in the evolution of the species than did interspecific crossing combined with gene mutations. In many other groups of plants genetics has fully accounted for the origin of species. Thus, Hirst, 1933 (*Gardeners' Chronicle*), has shown that the tribe *Roseae* includes 6 genera, containing 10 diploid species and 81 polyploid forms. *Rosa farinosa* appears to be the offspring of the polyploid *R. eglanteria* and the tetraploid *R. mollis.* This new form is spreading quickly in the district of England where it arose and appears to be a succesful rival to its own parent.

ENVIRONMENTAL FACTORS

Migration.—The importance of environmental factors in the evolution of animal and plant life cannot be over-emphasized and during the past year many investigations have been made of this subject. The way that the environment affects the ebb and flood of life has been for many years a problem of major importance. But even now the causes for the migrations of birds and mammals is not fully understood. It is, therefore, of interest that Beauchamp, 1933 (*J. Exp. Biol.* X), should have been considering the causes of migration in the flat worm, *Planaria alpina,* a very simple form of life. He finds that sexual development is accompanied by positive rheotaxy, and the mature Planaria move upstream This results in overcrowding of the streamheads and a shortage of food occurs. Starvation results in de-differentiation of the reproductive organs and consequently the loss of response to the current. The asexual animals tend to move down stream where they once again find abundant food. Sexual development cannot, however, occur until the temperature reaches a low point. In this simple form of life, therefore, the ebb and flow of the population is controlled by the food and temperature of the environment.

Disease Susceptibility. — Shelford at the Annual Meeting of the Ecologists during 1933, pointed out that in spite of the enormous amount of speculation there is very little exact information as to the causes of extinction of faunas. Hence it is interesting that Gowen and Schott (*J. of Hygiene* XXXIII) describes an epidemic of *Bacillus piliformis* in the Japanese waltzing mice which was not harmful to the common mouse. In the inheritance of crosses between the two species, the investigators found that the susceptibility to the Bacillus segregated independently of the white factor, the waltzing factor or the sex factor. They interpret that resistance to this Bacillus is dependent on a major dominant factor, the expression of which is affected by various modifying factors in certain crosses of mice. Susceptibility to other diseases such as cancer has long been known to have a genetic basis. Dobrovolskaia-Zavadskaia (*J. Genetics* XXVIII) has presented additional evidence for the genetic basis of cancer in certain strains which she studied. It is obvious from such studies as these that, if the genetic constitution of a strain is weakened, disease might eliminate a whole group.

Chemical Factors. — The relation of the animal to its environment is not something which may be always determined without careful checking. For example, H. Singh Pruthi, 1933 (*Rec. Indian Mus.*), has shown that many animals can survive in water far more salty than the sea and yet never live in that environment. Such resistant forms include Tabanid flies, Coleoptera and May Fly larvae. The author's explanation of their absence from the ocean is due to low calcium content of sea water.

The Mind Factor.—Among the less obvious effects of environment are those which are supposed to have entered through the mind. In recent years one of the most classical experiments of the Lamarkian effect upon higher mammals is that reported by the psychologist, MacDougall, who found that the offspring of trained mice were cleverer than the parents. But at the last British Association Meeting, the geneticist Crew reported his attempt to repeat MacDougall's experiment. He found that the first generation of his rats trained in the manner of MacDougall's material had an average equal to the 23rd generation of Professor MacDougall's group. In other words, there are dull and bright rats in almost any strain and MacDougall had been unconsciously selecting the brighter ones. This does not mean that the mind has not played a very important part in the evolution of animals. For example, Allee and Masure, 1933 (*Bull. Ecol. Soc. Amer.* XIV), have repeated the classical studies of Schjelderup-Ebbe on the pecking right in birds and confirmed his conclusions. In a barn yard the hens are not all of equal social standing, but one hen may peck another without being pecked back, and the second may have the pecking right over a third. This means that the hen at the bottom of the order has much less opportunity for gathering food than those higher up the line. The pecking order is established by a variety of factors—strength being only one; but once established, only a revolution within the group changes the order.

SEXUAL SELECTION

Darwin proposed not only his theory of natural selection as the directing mechanism of evolution but also his less discussed theory of sexual selection to account for the marked sexual differences which frequently are found in many species. During the past year two exhaustive treatises have been published. One by Hingston (*The Meaning of Animal Coloration*) gives an extensive critique of Darwin's theory and proposes another theory in its place. Hingston's view is that the bright colors are essentially warning and not attracting devices which have been used by males to bluff rivals in their combats as well as to intimidate the females. The other treatise on sexual selection is by Lebedinsky and is published in the *Bibliographia Genetica* (IX). Lebedinsky's idea is that the sexual adornments of the male serve as a "manometer'' to show the female that the male is in a healthy breeding condition. There is no actual selecting on the part of the female except between healthy and less healthy individuals. This view has also many fundamental objections to it, chief of which is that an unhealthy bird usually does not breed and hence does not enter into the picture. Although neither the theories of Hingston nor of Lebedinsky will stand severe inspection, they are useful in bringing together an enormous amount of data.

COLOR MODIFIED BY FOOD

The color of some animals is directly modified by the food. This is even true of birds as Giersberg and Stadie, 1933 (*Zeit. Wiss. Biol. Abt. C,* XVIII), have shown. They find that the foods of birds have a far greater effect on the color of the plumage than has hitherto been assumed. For any of these effects to be hereditary, they must strike the germ plasm, and at present this has not yet been proved.

CONCLUSIONS

The environment may produce remarkable heritage influences which may later become adaptive through natural selection. For example, it has been well known that if diploid tomato shoots are decapitated, about 7 per cent of the adventitious shoots arising from the surface are tetraploid. Sansome (*J. Genetics,* XXVII) has studied these tetraploid shoots in detail and finds that they have coarser, broader, thicker and darker leaves. The genetical factors for clear skin and red flesh in the original shoot gives four possible colors, and nine in the tetraploid offspring which results from decapitation. It is obvious that natural selection can produce a greater number of varieties in the offspring of the decapitated tomato shoot than it could in the uninjured original. In this way adverse environment may definitely speed up the rate of evolution. The sum total of recent experimentation indicates that the directing influence of the environment is always secondary. Animals and plants are preadapted for situations by germinal changes. If they happen to find the habitat for which they are suited they survive and evolutionary progress is attained.

VERTEBRATE ZOOLOGY

By James E. Kindred

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PROGRESS IN RESEARCH

The record of research in vertebrate zoölogy during the past year is a noteworthy one. Although few new methods have been introduced the older methods have been extended and improved upon. Gratifying progress has been made in the analysis of the structure and functions of the tissues and new fields for further investigation have been opened. Some of the results are given in the following paragraphs.

MORPHOLOGY

General.—Of value to the experimental morphologists, whose problems are rendered difficult by inherent variations in genetically pure strains of albino rats, are Freudenberger's analyses of variations of the organs of this animal. The measurements show that the central nervous system and the eyeballs vary least; suprarenal glands, stomach, intestines, submaxillary glands, heart, lungs, kidneys and ovaries are next most variable; while hypophysis, thyroid, thymus, spleen and uterus are the most variable.

Lymphatic System.—New data on the lymphatic system include a study of the reactions of the cells lining the lymph sinuses of lymph nodes to injected India ink (Drinker *et al.*). These cells phagocytose carbon particles and form a continuous lining of the sinuses except in regions of lymphocyte proliferation. More information concerning the relationship between lymphocytes and fat absorption is given by Baker who concludes that lymphocytes have no part in this process because the lymphocyte content of chyle from intestinal lymphatics of the cat is inversely proportional to the amount of fat present.

Nervous System.—New information concerning the morphologic details of the nervous system includes detailed descriptions of the brain of Necturus (Herrick) and the whale (Wilson). Also the relationship between cerebral areas of monkeys and motor functions, with particular regard to differences between long and short tailed monkeys, has been analyzed (Fulton *et al.*). The nerve cells of the spinal cord of the rat have been found to be larger in females than males (Tamaki). The Nissl substance which is present in nerve cells is regarded by Emerson, from experiments on cats, dogs and rabbits, to be characteristic of excited cells, and the substance is thought to be derived from nuclear chromatin. New information concerning the details of nerve endings in muscle is given by Hines for the boa constrictor, and Larsell and Dow have extended our knowledge of the sensory nerve endings in the duct system of the human lung.

Urogenital System.—The histologic changes in the human ovary from birth to maturity have been traced by Simkins. His views on the origin of the definitive ova from somatic cells substantiates the views of Hargitt and others who have studied this problem in other mammals. Cellular changes in the vaginal fluid of women have been found to conform to definite cycles comparable to cellular cycles accompanying oestrus in other mammals (Papanicolou). The exact duration of gestation in the chimpanzee has been found to be 246 days (Tinklepaugh). Additional information concerning the anatomy of the kidney tubules of many vertebrates is given by Edwards and Schnitter.

Hair.—From a study of graying hair in man, Boas and Michelson conclude that the average age for the appearance of gray hair in the white race is 34 years and in the negro, 43 years.

Skeleton.—Outhouse and Mendel, from comparisons of the dimensions and degree of differentiation of the skeleton of slow-growing and fast-growing rats (the rate of growth of the latter having been increased by additional substances in the diet), conclude that rapid growth results in increase in body size but not in degree of differentiation of the skeletal system. A new method for the differentiation of bone by ultraviolet photomicrography has been introduced by Fowler and Applebaum. By this method the sizes of constituent fibers, their direction, lacunae and canaliculi can be demonstrated.

Ductless Glands.—In recent studies of the thyroid gland it has been shown that the follicular epithelium regenerates from undifferentiated interfollicular cells (Zeckel); the chief cells are exhausted phases which, upon administration of iodine, become colloid cells (Webster), and the muscular tissue in the arteries of the thyroid gland is so arranged that a valvular action may be attributed to it, whereby blood flow to the follicles is controlled.

Gland-like structures and concretions resembling the 'brain sand' of the epiphysis have been found in the pars intermedia of the human hypophysis cerebri (Rasmussen). Much attention has been given to the recent discovery of a relationship between the sexual cycle in the rat and the characteristics of cells of the hypophysis (anterior lobe). Eosinophilic cells have been found to predominate during oestrus and basophilic cells during dioestrus, while cells with small eosinophilic granules preponderate during the first phases of pregnancy and basophilic cells with granular debris during the latter part.

CYTOLOGY

Cytoplasm.—New information concerning the Golgi apparatus in the hypophysis (Atwell), in the nephrocytes of fish kidneys (Defrise), and gland cells in general (Nahm) has appeared recently. In the hypophysis the Golgi net is small in the eosinophils, larger in the basophils, and largest in the chromophobes. Successful impregnation of the Golgi net of gland cells depends upon the time between fixation and death, position of the cell in the tissue, and the temperature of incubation with osmic acid.

More evidence for the value of the microincineration method in determining the content of inorganic salts in cells is given by G. Scott. Vital staining of the granules of red blood corpuscles in Necturus has been accomplished by intraperitoneal injections of neutral red and brilliant cresyl blue, thus showing that vital staining is not accompanied by death (Dawson), but staining of reticulations in these cells follows only after administration of lethal doses.

Nucleus.—Narrow lath-like crystalloid structures, as many as ten per nucleus, have been found in the nuclei of the epidermal cells of the catfish (Dawson).

Mitosis.—Fry and Robertson, in a critical study of the relationship between centrioles and spindle fibers in embryonic cells under controlled conditions of fixation and staining, conclude that centrioles are probably focal staining artifacts resulting from accumulations of dye at points where fibers converge.

EMBRYOLOGY

Eggs.—From a study of living rat eggs, Gilchrist and Pincus record the average diameter of the fertilized egg as about 75 micra; and its volume is about 15 per cent less than when unfertilized. Hen's eggs when subjected to high temperature were found to grow rapidly at first, but later, growth was completely arrested. Fat and calcium metabolism were little influenced by temperature (Romanoff and Faber).

Cleavage.—In new studies on the changes incident to fertilization and cleavage in Amphioxus' eggs by Conklin, germ layer primordia have been found to be localized in the egg in such a manner that the first cleavage plane establishes bilateral symmetry of organ-forming substances. Experiments with isolated blastomeres from this and later cleavages show that only each of the first two blastomeres can give rise to complete embryos.

Embryos and Fetuses.—A young human embryo of the presomite stage (0.7 mm. long and 19 days old) has been described by Kindred. Harman and Dobrovolny, from a study of the characteristics of fetal guinea pigs, conclude that degree of flexion, length of tail, location of hair, and shapes of mouth and ear, are better criteria for estimating age than are length and weight. According to Corey, the presence of dead young rat fetuses, either in the uterus or body cavity, do not cause death of the mother, but fetuses nearing term do; the leucocyte count of the mother is not influenced by the presence of dead fetuses in utero, but is markedly changed if dead fetuses are present in the peritoneal cavity. The duration of gestation in mice has been found to be influenced by the presence of sucklings, which, according to Enzman *et al.*, prevent implantation by prolonging the period of lactation.

Nervous System.—Most of the investigations on the development of the nervous system are experimental in nature and have been carried out by the transplantation method in salamander embryos. An extensive exhibit of the instruments used in this technique as well as models of the results were on view at the Chicago Century of Progress Exposition. Using this technique, Detwiler has found that heteroplastic grafts of spinal cord segments grow faster in the host than does the same region in the normal animal; Carpenter *et al.* report that hyperplasia of spinal ganglia opposite limb grafts is controlled by nutrition; Burr concludes that excessive mitosis in the wall of the diencephalon opposite the site of implantation of the olfactory organ influences the direction of growth of the fibres from the primordial olfactory cells, and Richardson has found that in heteroplastic grafts of the ear vesicle, the organ growing from the graft reaches the size characteristic of the species from which the primordium came. Further observations on the growth of regenerating nerve fibers in the tadpole tail are reported by Speidel. These include the recognition of an ameboid moving mass at the tip of the fiber which directs its growth through the surrounding connective tissue cells and fibers; the absence of influence of electric fields on the direction of growth, and the growth of fibers along the same path in diametrically opposed directions.

Urogenital System. — Using the technique in which fragments of embryos are transplanted to the chorio-allantoic membrane of incubating hen's eggs, Seevers has found by selective culturing of different regions of chick embryos that the cells from which the kidney arises are located in the mesoderm between the 31st and 35th segment of 96-hour chicks. Humphreys shows that, as an aftermath of extirpation of intermediate mesoderm from wood-frog embryos, a gonad develops from primordial germ cells of entodermal origin, but the mesonephros which normally grows with the gonad is absent, and if a piece of mesoderm is extirpated and mesoderm from the same region of another embryo grafted in its place, that gonad and mesonephros develop, but the gonad has the sex of the donor and not of the host animal.

Heart. — Heart primordia which have been transplanted from Axolotl embryos into Triton embryos and *vice versa* have been found by Copenhaver to develop into hearts which pulsated at the rate normal for the host species. From experiments in which India ink, starch grains and dye particles were injected into the venae cave of living chick embryos, Magruder confirms the view that the blood streams from these veins mix in the right atrium. The details of development of the sinu-atrial region of the chick heart have been described by Quiring. Caffeine has been found not to affect the rhythm of the heart beat in fish embryos until after the vagus nerve has effected a connection with this organ (Brinley).

Blood. — The monophyletic theory of the origin of blood cells receives support from the observations of Kingsbury on the development of the tonsil of the cat. The primitive mesenchyme differentiates into lymphocytes, and during the later phases of development red blood corpuscles differentiate either from these or from the reticular connective tissue cells.

Ductless Glands.—From an analysis of the hormonal content of the blood and organs of horse fetuses, Cole *et al.* have obtained oestrin. They conclude that this is the source of oestrin present in the body fluids of pregnant females. Eosinophilic cells in the developing hypophysis of pig embryos have been found by Nelson to be correlated with the appearance of the anterior lobe hormone.

EXPERIMENTAL MORPHOLOGY

Ductless Glands.—In experiments with Colorado Axolotls, Figge and Unlennuth found that only those with intact thyroid glands metamorphosed following treatment with extract of bovine hypophysis. Van Slyke reports that metamorphosis in Triturus, following treatment with thyroid gland extract, takes place more rapidly at higher than lower temperatures. From experiments with fowl, Danforth suggests that replacement of feathers of one color by those of another is due to interaction between determiners of genetic characters and hormones of ductless glands.

Extirpation of the hypophysis has been found to have the following effects: in rats it interferes with implantation of embryos (Pencharz and Long) and has no effect on motility of sperms (White). Castration in rats results in hypertrophy of the hypophysis (Stein) and in inhibition of growth in body length (Cummins). Partially ovariotomized hens lay fewer eggs than normal (Hutt and Grussendorf), while in 15 per cent of completely ovariotomized hens the oviduct was distended, a condition thought to be caused by retention of fluids normally added to eggs as they descend the oviduct (Domm). The mammary glands of normal male guinea pigs are not affected by ovarian grafts, but if they are castrated or the testes raised into the abdomen they are affected (Smelser). Injections of hypophysis (anterior lobe) extract into female rats produces follicular atresia; injections of nucleo-proteins causes retention of ova and increase of basophilic cells in the hypophysis, while injections of spermatozoa cause retention of ova and increase in eosinophils in the hypophysis (Guyer and Claus).

INVERTEBRATE ZOOLOGY

By J. A. Dawson

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RESEARCH TRENDS

The year 1933 is characterized by a very considerable volume of research by American workers. Every field of Invertebrate Zoology is well represented although as usual in recent years the greatest number of papers are physiological in nature. Out of slightly more than one hundred publications reviewed nearly 45 per cent deal with some aspect of physiology; the remainder are well distributed among other fields of Invertebrate Zoology.

PROTOZOA

Taxonomy and Morphology.—In a study of ciliate protozoa from the Indian ox C. A. Kofoid and R. F. MacLennan (Univ. of Cal. *Pub. in Zool.*, Vol. 39, No. 1) revise the genus *Epidinium*; create a new genus, *Epiplastron,* and describe a new species of *Ophryoscolex.* Philip B. A. Powers (*Biol. Bull.*, Vol. 65, No. 1) describes seven species of ciliates infesting the sea urchin, *Strongylocentrotus dröhbachiensis.* Included among these are three new species. The same author also describes ciliates inhabiting the intestine of other widely distributed sea urchins and gives a complete description of the behavior and morphology of one of these, *Entodiscus borealis.* A new species of ciliate, *Conchophthirius caryoclada,* living in the mantle cavity of the edible clam, *Siliqua patula* is described by George W. Kidder (*Biol. Bull.*, Vol. 65, No. 2). The same author, (*Biol. Bull.*, Vol. 64, No. 1) gives a careful description of the structure and division of *Ancistruma mytili* and *A. isseli* and discusses the differences between these two species. An interesting heterotrichous ciliate, similar superficially to *Spirostomum,* is described as a new species, *Gruberia calkinsi,* by Enrique Beltran (*Biol. Bull.*, Vol. 64, No. 1) D. H. Wenrich and M. A. Emmerson (*Jour. Morph.*, Vol. 55, No. 1) in a study of *Tritrichomonas foetus,* a flagellate inhabiting the genital tract of domestic cows and supposed to cause sterility and abortion, show that this species resembles *T. augusta* more than it does *T. vaginalis* of man. James B. Lackey (*Biol. Bull.*, Vol. 65, No. 2) discussing the morphology of *Peranema trichophorum* shows that this species possesses a second trailing flagellum which, due to the fact that it is carried under the body of the flagellate when it is moving and is extremely delicate in structure, has escaped observation up to this time. *Peranema* is therefore placed in the family Heteronemidae. Two new species belonging to the genera *Proboscidiella* and *Devescovina* respectively are described from *Kalotermes occidentis,* a termite of Lower California by Walter W. Lewis (Univ. of Cal. *Pub. in Zool.*, Vol. 39, No. 3). A careful and exhaustive correlation of the silverline and neuromotor systems in *Paramecium multimicronucleata* is made by Everett E. Lund (Univ. of Cal. *Pub. in Zool.*, Vol. 39, No. 2). The author claims that the neuromotor system in *Paramecium* is composed of two general divisions one of which consists of basal granules and long body fibrils, the other is associated with the cytopharynx. Working on the external fibrillar system and neuromotor apparatus of *Euplotes,* John P. Turner (*Biol. Bull.*, Vol. 54, No. 1) shows that Yocum's earlier account is substantially correct but states that there is no evidence of the existence of a "motorium." In further work, using the micro-incineration method, E. S. Horning and Gordon H. Scott (*Jour. Morph.*, Vol. 54, No. 2) show that there is a marked difference in the distribution of mineral salts in saprozoic and holozoic organisms and believe that this may be correlated with the diffusion of digestable material through the cuticle.

Physiology.—H. W. Chalkley and George E. Daniel (*Physiol. Zool.*, Vol. 6, No. 4) report that, in the fission stages of *Amoeba proteus,* the nuclear phases are accompanied by typical changes in cell form that are easily and fairly accurately distinguishable under relatively low magnifications. The same authors (*Jour. Cell. and Comp. Physiol.*, Vol. 2, No. 3) show very interesting temperature effects upon the process of division in *Amoeba proteus* and suggest that their data may indicate that oxidative reactions govern the process of fission in this organism. Robert F. Pitts (*Biol. Bull.*, Vol. 64, No. 3) has measured the rate of locomotion in *Amoeba proteus* and finds that monopodal forms travel at the greatest speed. The average speed for all forms at 23° C. is 211 micra per minute. The same author with S. O. Mast (*Jour. Cell. and Comp. Physiol.*, Vol. 3, No. 4) report that, as the acidity changes, the rate of locomotion of *Amoeba proteus* shows two maxima, one at pH 6.2 and another at pH 7.5. The thermal death point of *Euglena gracilis* in pure cultures varies from 37.5° C. to 44.0° C according to Theo. L. Jahn (*Archiv. f. Protistenk.*, Bd. 79, Heft 2). The values given depend on the length of exposure, a longer time being required for sterilization at the lower temperature. Euglena is unable to withstand prolonged freezing. Alfred M. Elliott (*Biol. Bull.*, Vol. 65, No. 1) states that he has succeeded in isolating and rearing *Colpidium striatum* in nutrient bacteria-free medium and that the growth of the ciliates was found to occur between the pH ranges of 4.0 to 8.6. The problem of inducing excystment in *Colpoda cücullus* is attacked by H. Albert Barker and C. V. Taylor (*Physiol. Zool.*, Vol. 6, No. 2) who claim that changes in acidity alone are ineffective in bringing about excystment. Plant and animal extracts are the active agents in inducing excystment while pure chemicals, either inorganic or organic, are ineffective. That the ratio existing between the protozoans and the bacterial population in the culture medium explains satisfactorily the allelocatalytic effect of Robertson is claimed by Willis H. Johnson (*Physiol. Zool.*, Vol. 6, No. 1) who found that suspensions of the bacterium *Pseudomonas fluorescens* of 80 to 135 million per cubic centimeter were optimal for reproduction in *Oxytricha.* Another link in the chain of his long-continued work with the ciliate, *Didinium nasutum,* was added by C. Dale Beers (*Archiv. f. Protistenk.*, Bd. 79, Heft 1) who found that he could readily induce depression and death in cultures of this organism by feeding it on starved paramecia. By replacing well-fed paramecia in his cultures of didinia the author claims that complete recovery occurred in 24 hours. C. V. Taylor, J. O. Thomas and M. G. Brown (*Physiol. Zool.*, Vol. 6, No. 4) show that the lethal effects of *x*-radiation of a sterile culture medium for Colpidium campylum were due to the formation of hydrogen peroxide and that if the peroxide were removed the medium was no longer lethal.

Genetics.—In continuation of his studies on *Paramecium,* Daniel Raffel (*Jour. Exp. Zool.*, Vol. 66, No. 1) concludes that reduction of some of the pairs of chromosomes in Paramecium during conjugation occurs before the final maturation division and reduction of others occurs at that time. Lucile Caldwell (*Jour. Exp. Zool.*, Vol. 66, No. 3), studying the production of inherited diversities at endomixis in *Paramecium aurelia,* finds that in certain clones many nonviable lines are produced at this time, also that variability in fission rates tend to follow endomixis. Most of the changes at endomixis are to a lower rather than to a higher fission rate.

METAZOA

Morphology and Development.—In an interesting paper on the annelid, *Dodecaceria* of Vineyard Sound, Earl A. Martin (*Biol. Bull.*, Vol. 65, No. 1) shows that two species, *viz. Dodecaceria coralii* and *D. fimbriatus,* exist as American forms. Reproductive phenomena displayed by Dodecaceria are extremely varied and range from a primitive form of asexual reproduction to highly developed sexual types. Wm. A. Kepner, Jeanette S. Carter and Margaret Hess (*Biol. Bull.*, Vol. 64, No. 3) describe in detail the method of sexual propagation hitherto little known in *Stenostomum oesophagum,* a turbellarian flatworm. Dr. Richard Goldschmidt (*Biol. Bull.*, Vol. 64, No. 3), studying Bermudan *Amphioxides* obtained from Dr. William Beebe's collections, suggests that all *Amphioxi* have two types of larvae, one which metamorphoses in the locality in which it was born and another which adopts a pelagic life with a much later metamorphosis. A careful study of the musculature of the Lacewing, *Chrysopa plorabunda,* is made by F. W. Miller (*Jour. Morph.*, Vol. 55, No. 1) who supplies an account complete for the each major body division of the insect. According to Hurley Lee Motley (*Jour. Morph.*, Vol. 54, No. 2) the heart of the fresh water mussel consists of smooth muscle with no anastomosing connections between the auricle and the ventricle. Neither nerves nor ganglia are found in the walls of either of these structures. The author agrees with Ransom that the rhythm of the heart beat depends on internal pressure. C. Ruth Shaw (*Biol. Bull.*, Vol. 64, No. 2) has further filled out the life history of *Cercariaeum lintoni* by experimentally bringing about the development of the metacercarium on the parapodia of the annelid worm, *Nereis virens,* which appears to be a natural host for this parasite. The embryology of the classical form, *Amphioxus,* is restudied by Edwin Grant Conklin (*Jour. Morph.*, Vol. 54, No. 1) and compared with that of Ascidians which have been extensively studied by this author. Dr. Conklin finds that the poles, axes and localizations of formative materials are much the same in these related organisms. The same author report also (*Jour. Exp. Zool.*, Vol. 64, No. 2) on the development of isolated and partially separated blastomeres of *Amphioxus* and comes to the conclusion that complete regulation occurs only in the plane of bilateral symmetry and that, except for this, development in *Amphioxus* is, like that of the Ascidia, a mosaic work. The development *Sciara coprophila* is studied by Anne Marie DuBois (*Jour. Morph.*, Vol. 54, No. 1) and compared with that of other Diptera. It is found that during the first few cleavages the nuclei of the future somatic cells eliminate some of their chromosomes but that the future germ cells retain the full number. B. H. Grave (*Jour. Morph.*, Vol. 54, No. 1) contributes a study of the embryology and life history of the chiton, *Chaetopleura apiculata.* The development is similar to that of other related Mollusca, individuals becoming sexually mature at the end of one year and fully grown in from three to four years. The first complete observations on the development of *Balanus crenatus* through the eight nauplius stages to the cypris stage are described by Ludwig E. Herz (*Biol. Bull.*, Vol. 64, No. 3) who states that the cycle is completed in from two to three weeks. Wesley R. Coe (*Biol. Bull.*, Vol. 65, No. 2) reporting on sexual phases in the shipworm, *Teredo navalis,* finds that the common species of the Atlantic coast are essentially protandric as nearly all females pass through a preliminary male stage before finally becoming definitely female; after the definite female phase is reached there is no evidence of a second sex reversal.

Cytology.—In an interesting study of monocentric mitosis in *Sciara,* C. W. Metz (*Biol. Bull.*, Vol. 64, No. 3) describes the segregation of chromosomes in a unipolar field. In discussing his results the author argues in favor of the theory that the chromosomes which "retreat" from the pole are alive and move autonomously. H. W. Beams and R. L. King (*Biol. Bull.*, Vol. 64, No. 3) investigating the pharyngeal glands of the honey bee demonstrate that these glands are composed of lobules, each lobule containing ten to twenty unicellular glands and that each gland possesses an intracellular canaliculus which is secretory in function. Continuing his studies with vital stains, Alden B. Dawson (*Biol. Bull.*, Vol. 64, No. 2) claims that the colored corpuscles (containing respiratory pigment) of several common marine invertebrates treated with brilliant cresyl blue show reticulation patterns similar to those of vertebrate red blood cells. In further studies on the cells of *Hydra,* Carl H. McConnell gives evidence (*Biol. Bull.,* Vol. 64, No. 1) that the ectodermal epithelio-muscular cells of this organism add to their number by mitosis. The same author in a second communication (*ibid*) shows that the endodermal secretory cells act in a similar manner even after such cells have become functionally active. In a painstaking research on the mitotic figure in *Chaetopterus,* Henry J. Fry (*Biol. Bull.,* Vol. 65, No. 2) reveals that, out of a large number of reagents used, centrioles can only be demonstrated by using certain organic substances as fixatives. Of these, acetic acid appears to be most effective. C. E. McClung and J. J. Asana (*Jour. Morph.,* Vol. 55, No. 1) show that in the Orthopteran, *Schizodactylus monstrosus,* the chromosome complex differs very radically from that usually found in this group of insects. Working on another Orthopteran, H. Irene Corey (*Jour. Morph.,* Vol. 55, No. 1) gives an account of spermatogenesis in *Stauroderus* which possesses 17 spermatogonial chromosomes. Additional proof for the individuality of the chromosome is also adduced. W. J. Baumgartner (*Jour. Morph.,* Vol. 55, No. 2) reviews the advances made in cytological studies by the use of living cells as material for research and shows by appropriate photographs how finer structures in living cells may be demonstrated. In a similar work, Ralph W. G. Wyckoff and Albert H. Ebeling (*Jour. Morph.,* Vol. 55, No. 1) demonstrate the appropriate wave length to be used to obtain best definition in ultra-violet photomicrography. Using an intra-vitam technique, M. Anthony Payne (*Jour. Morph.,* Vol. 54, No. 2) describes the structure of the testis and the movements of sperm cells in *Chortophaga viridifasciata.* The course of the sperm cells from the follicle of the male to the ovipositor apparatus of the female is followed, and the author claims that, while the sperm cells pass down the follicle of the male by their own activity, they are carried passively during the rest of their journey by peristaltic action.

Polarity and Regeneration.—In a study of the longitudinal gradient in *Stylochus ijimai,* Yisamu Watanabe and C. M. Child, (*Physiol. Zool.,* Vol. 6, No. 4) show that carbon dioxide production is increased by sectioning of the animal but that in from two to six hours there is a return to the same level of production as obtains in the intact animal. Characteristic respiratory gradients in this animal are of the *U*-shaped type with regions of higher respiration in the anterior and the posterior ends. An elucidation of the gradient theory concept and a discussion of recent criticisms of this theory is appended to this work. Repeating earlier classic studies on the phenomena of regeneration in everted Hydra, Robert L. Roudabush (*Biol. Bull.,* Vol. 64, No. 2) shows that Hydra may recover and continue to live after having been turned inside out. In some cases the Hydras returned themselves in a manner somewhat similar to the turning inside out of the finger of a glove; in others, no activity resulted and the animals eventually died; in still others complete regeneration was attained by the migration of the cells back into their original positions. James T. Penny (*Jour. Exp. Zool.,* Vol. 65, No. 3) describes a method of culturing fresh water sponges (*Spongilla discoides*) in the laboratory and also shows the course of the phenomena of reduction and regeneration which regularly takes place in these animals. In a study of regeneration in *Phagocata gracilis,* J. William Buchanan (*Physiol. Zool.,* Vol. 6, No. 2) shows a cross section taken from any region of the worm either regenerates a normal head and undergoes complete regulation or it does not regenerate at all; the percentage of heads formed decreases as similar fractional pieces are taken from a more posterior region. The author concludes that whether or not a head is formed depends on the relation between the rates of growth and metabolism of the tissue at the anterior cut surface and that of other regions of the piece. In regenerating earthworms, Benjamin Kropp (*Jour. Exper. Zool.*, Vol. 65, No. 1) shows that the nervous system has no functional relation to the phenomenon of head regeneration.

Behavior.—A. E. Hopkins (*Jour. Exp. Zool.*, Vol. 64, No. 3) has determined in regard to the feeding behavior of the oyster, *Ostrea gigas*, the amount of water pumped by the oyster depends on the openness of the shell which in turn depends on the temperature. The feeding of the oyster is most effective at 20° C. A method whereby one Hydra may be made to ingest another is described by Andrew L. Pickens (*Biol. Bull.*, Vol. 64, No. 2). The reactions of both animals and the method of escape of the ingested Hydra are noted. The Cercariae of *Bucephalus elegans* respond regularly to rapid increases in light intensity according to Gerrit Bevelander (*Physiol. Zool.*, Vol. 6, No. 3) who also indicates that the responses are not in accord with the Bunsen-Roscoe law. T. J. B. Stier (*Biol. Bull.*, Vol. 64, No. 3) finds that *Thyone briareus* during the winter months shows definite diurnal periods of activity. ''Locomotor'' waves and feeding movements of the tentacles increased in frequency at about 4.00 P. M. and between 1.00 and 2.00 A. M. At these times Thyone also showed a pronounced negative geotropism. Studying the activities of small marine animals, John H. Welsh (*Biol. Bull.*, Vol. 65, No. 2) shows the locomotor appendages move more rapidly in light of high intensity but that the ciliary activity of animals is not modified by changes in light intensity.

Physiology.—Benjamin Kropp and Earle B. Perkins (*Biol. Bull.*, Vol 64, No. 1) in a continuation of studies initiated by Dr. Perkins show that the chromatophore activating substance of the crustacean eye-stalk is very widely distributed among the decapod Crustacea. The same authors (*Biol. Bull.*, Vol. 64, No. 2) find a considerable variety of fishes respond to action of the crustacean eye-hormone by contraction of the melanophores thus adding additional weight to the view that humoral substances are involved in producing color changes in fishes. The effect of exposure to alternating temperatures on the pupal development of *Drosophila melanogaster* is studied by Daniel Ludwig and Raymond M. Cable (*Physiol. Zool.*, Vol. 6, No. 4) who find that Drosophila is more susceptible to the retarding influence of exposure to high temperature during the first 24 hours of pupal life than at any other time. The same result holds also for exposure to low temperatures. That the oyster, hitherto reported to live only upon plankton plants, is able also to digest small animals such as nematodes is announced by Thurlow C. Nelson (*Proc. Exp. Biol. and Med.*, Vol. 30, No. 9). In a study of the digestion of wax by the wax-moth, *Galleria mellonella*, Albert Dickman (*Jour. Cell. & Comp. Physiol.*, Vol. 3, No. 2) finds that about fifty per cent of the wax passing through the digestive tract of the larvae is emulsified, digested and assimilated. The author also shows that purified wax obtained from tubercle bacilli is a satisfactory substitute for beeswax as food for these forms. In a survey of the food requirements of the grasshopper, *Melanoplus differentialis*, Charles Hodge (*Physiol. Zool.*, Vol. 6, No. 3) shows that diets of lettuce or oat leaves alone are unsatisfactory but that the insects will thrive on wheat, barley or rye leaves alone, indicating that single plants may be sufficient and satisfactory diets for this species. In an interesting study of the differential effect of environmental factors upon the hymenopteran, *Microbracon hebetor* which is parasitic on the flour moth, *Ephestia kühniella*, Nellie M. Payne (*Biol. Bull.*, Vol. 65, No. 2) finds that the chances of the parasite exterminating its host depend in large measure upon the temperature and that, in general, high temperatures (32° C. or above) favor the host while low temperatures (15° C. or less) favor the parasite. John N. Gerould (*Biol. Bull.*, Vol. 64, No. 3), as a result of studies on representatives of four orders of holometabolous insects, Diptera, Coleoptera, Lepidoptera and Hymenoptera respectively, shows reversal of heart-beat occurs intermittently in the larvae. The insects thus fall into the same category in this respect as the Ascidia and Phoronis. A further contribution to our knowledge of the pH of protoplasm is made by C. G. Pandit and Robert Chambers (*Jour. Cell. & Comp. Physiol.*, Vol. 2, No. 3) who state that in the egg of the sea-urchin, *Arbacia punctulata* the pH value is approximately 6.8. The effect of irradiation, using *x*-rays, on anterior regeneration in the oligochaete, *Tubifex tubifex* is noted by Raymond G. Stone (*Jour. Morph.*, Vol. 54, No. 2) who states that such regeneration is completely inhibited although the wound will heal and the worm will survive for long periods without further change. Permeability studies on eggs of *Arbacia punctulata* by Morton McCutcheon and Baldwin Lucke (*Jour. Cell. & Comp. Physiol.*, Vol. 2, No. 1) show that the temperature effect on the endosmosis of water is very considerable, the temperature characteristic for this process having a value of 16,600. The process also is completely reversible and the temperature characteristic values are very similar.

Genetics. — Jack Schulz and Th. Dobzhansky (*Jour. Exp. Zool.*, Vol. 65, No. 1) investigating triploid hybrids between *Drosophila melanogaster* and *Drosophila simulans* find that such hybrids are sterile but that the sterility is not due to the failure of the chromosomes to conjugate but rather, according to the authors, to some kind of relationship between complementary dominant genes.

VERTEBRATE PALEONTOLOGY

By F. B. Loomis

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NEW PUBLICATIONS

For over thirty years American students have labored under the difficulty of having no summary treatment of this subject. This year the handicap is removed by the publication of Alfred S. Romer's *Vertebrate Palaeontology* for advanced students and workers, and also his *Man and the Vertebrates* for beginners. The former is a handbook which at least mentions and puts in its proper place all the vast range of fossil animals from fishes to man. The latter opens to the novitiate the methods of thought and reasoning, and illustrates these by the better known forms.

OSTRACODERMS

During the year the activities of the field men have been focused on the two extremes of the story of the backboned animals; first, on the ostracoderms or jawless fishes and, second, on the earliest appearance of man in America. A year ago Prof. Patten of Dartmouth brought a great collection of ostracoderms to this country from Norway and Greenland. This year, continuing work begun a year ago, Princeton University has collected a large lot of these and other early fishes from a new locality at Beartooth Butte in Wyoming, and the first of a series of memoirs on these finds is published by the Philadelphia Academy, written by W. L. Bryant. Harvard, too, has added to the knowledge of this group by getting an extensive series of them from Victoria, Australia.

CONODONTS

Conodonts are attracting intensive study. They are tiny teeth occurring in bewildering numbers and variety in the Palaeozoic formations. The University of Missouri is devoting all its attention to these tiny forms and collecting them by the tens of thousands. As yet, however, it is not settled as to whether they are to be regarded as the teeth of early fishes or to belong to some form of worm.

DINOSAURS

Of the primitive reptile, which is usually accredited with being as nearly ancestral as any known, Seymouria, Harvard found in its attic four skeletons collected long ago in Texas. As usual dinosaurs came in for marked attention. The American Museum has located a group of skeletons in Wyoming which will require a year or more to take up. These are of the rarer armoured types. Harvard has mounted a skeleton of Plateosaurus. The national Museum of Canada has mounted and described a new form of the toothles agile Ornithomimus; and has placed on exhibition a series of four skulls of the hooded duckbill type of dinosaurs. The U. S. National Museum has mounted a skeleton of the great carnivorous Gorgosaurus. Prof. Lull has completed a monograph on the horned dinosaurs, Ceratopsidae. This work was started years ago by Marsh, and gives a summary picture of this weird group of quadrupedal dinosaurs. Few skeletons of this group have been complete enough to mount, so the setting up in the American Museum in New York of a complete skeleton of Triceratops elatus adds many new points to the interpretation of the pose and habits of this animal.

CROCODILES

The American Museum found a beautifully complete skeleton of a crocodile in the Triassic of Arizona. It is some 30 inches long with an extensive armour on both the back and belly, and represents a new family, which seems to be ancestral to the later crocodiles.

BIRD REMAINS

Bird remains are always scarce, but the Harvard party near Torrington, Wyo., continues to get large numbers of bird bones which indicate that many of the recent bird families run back into the Oligocene at least. A
an illustration of this the Universit
of Michigan party found and ha
described a moderate sized hawk i
these beds near Scenic, S. D.

SABER-TOOTHED CAT

While numerous new species an
several more complete skeletons o
mammals have been found, there ar
but three families the status of whic
has been materially changed by th
new material. The saber-toothed cat
is one. New skeletons have bee
mounted by Princeton and the University of Michigan, but the chang
in status comes from the new find
of Eusmilis by Princeton in the lowe
Oligocene, these forms having th
saber-teeth developed to an extent eve
outdoing the branch of the famil
which lived to near recent times. Thu
we see a specialization overemphasize
right at the beginning of their histor
and after the exterminization of tha
line, the same or a similar development repeated again by other member
of the family.

THE ELEPHANT

The elephant group is already ric
in numbers and variety but ther
seems to be no end to the new form
which are to come to light. Child
Frick adds several new genera an
species from New Mexico, Texas an
California, and supplements the knowledge of several of the little know
forms by more complete material. Th
University of Nebraska finds more elephants, specially more of the curiou
shovel-tusked type, and a complet
skeleton of the Archidiskodon, not t
mention an extensive collection as ye
unpacked. The shovel-tusker also turn
up in California. The Colorado Museum found a complete skeleton of a
Archidiskodon so close to the A.meridionalis of Europe that Osborn has differentiated it only as a subspecies, an
looks upon it as the ancestor o
A.imperator. For years Osborn ha
been expecting to complete a monograph on the elephants, but has bee
held back by the continually increasing numbers of new types coming t
light. It will probably be complete
however, very soon.

PLESHIPPUS

A couple of years ago the National Museum found a deposit of bones of Pleshippus in Idaho, enough to furnish several complete skeletons of this interesting horse, intermediate between the recent genus Equus and the Pliocene genus Pliohippus. This material has now been prepared and mounted and is being distributed to other museums also.

ARTIFACTS OF EXTINCT ANIMALS

The finding of artifacts associated with remains of extinct animals has become very frequent the past year. The University of Nebraska parties report three such associations, each time from two to eight artifacts with the bones of extinct bisons, one near Grand Island, one near Scotts Bluff, and the third near Cumo, all in Nebraska. In Weld Co., Wyo., the Colorado Museum reports Folsom-like artifacts associated with the remains of the extinct mammoth. Probably, however, the most conclusive data is to come from near Clovis, N. M., where the Carnegie Institution, California Institute of Technology, The Academy of Science of Philadelphia and the University of Pennsylvania are jointly working in a cave deposit, where on top there is a layer with Cave Dweller Indian remains, below it a goodly distance, a layer of the bones of extinct animals, and then below this in turn artifacts similar to those found by others with the bison and mammoth bones. The results of this will probably appear during the year.

BOTANY

By Mildred E. Mathias

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PLANT PHYSIOLOGY

Mineral Nutrients.—Researches in the field of plant physiology have continued to occupy numerous workers. Studies of the mineral nutrient relations of plants have been continued by many investigators with papers published on the effects of manganese, boron, nitrogen, phosphorus and various chemical compounds on growth, sugar content, respiratory rate and dormancy.

Radiation.—A symposium on radiation and plant life held by the American Society of Plant Physiologists during their summer meeting in Chicago summarized much of the work in that field. It was reported there that plants were capable of building up a resistance to *x*-ray when given several light doses preceding the "killing" dose of thirty minutes. A point stressed was that the effects of radiation on growth were individual variations even within a species, and generalizations must be drawn with that point in mind. A paper of interest to the worker in this field is that by Popp and Brown which reviews critically the recent work on the effect of ultraviolet radiation upon seed plants. There have also been papers of interest on photoperiodism and photosynthesis including one on the effects of various portions of the spectrum on photosynthetic activity.

Growth and Germination.—Studies on growth and germination have included a continuation of the work on the growth hormone in plants, the effect of "heavy" water on seed germination, and the effects of soil temperature on germination.

Miscellaneous.—The subjects of osmotic variations, utilization of adsorbed ions, translocation, effects of hydrocarbon gases, respiration, sap hydraulics, temperature effects, *pH*, etc., have been discussed in various papers making important contributions to our knowledge of the physiology of plants.

MORPHOLOGY AND ANATOMY

Lower Plants.—Studies of the morphology and anatomy of lower plants include papers on the morphology of the *megagametophyte* and the embryo sporophyte of *Isoetes lithophila,* origin and development of tissues in *Equisetum scirpoides,* and cases of apogamy in certain homosporous leptosporangiate ferns. The life history of *Pterygophora californica,* a member of the Laminariales, has been published in detail.

Higher Plants. — Publications on anatomy of higher plants include a study of the life history of *Brassica oleracea,* the vascular anatomy of the transition region of certain Solanaceae, the anatomy of the embryo of *Cedrus* in the dormant stage, a study of the carpophore of the *Umbelliferae,* and the development of the male gametophyte in *Tradescantia.* The morphology of leaves has been studied in species of rhododendron and paeonia.

Seeds.—Studies of seeds, germination and seedling development have been made of *Cyclamen persicum, Magnolia grandiflora,* and tobacco.

TAXONOMY

Botanical explorations have been continued in many parts of the world both by organized expeditions and local collectors. Since these are of great interest to the worker in systematic botany they are discussed here. Those expeditions which may be mentioned are the University of Michigan Greenland Expedition and the University of Michigan biological survey of the Maya region in Central America in coöperation with the Carnegie Institution of Washington. Dr. and Mrs. Graham of the Carnegie Museum spent several months in the Uintah Basin in northeastern Utah completing a survey of the flora of that region; Mr. Morton of the National Museum spent some time in Mexico, and Dr. Smith of the New York Botanical Garden has recently left this country for a year in the South Seas studying the flora of the islands.

Monographic studies of several groups of flowering plants have been continued. Dr. Bailey has published further papers on blackberries and palms. Smith has continued studies in the Bromeliaceae and Sherff has carried on his work on the Compositae. In the latter family Miss Larsen has published a revision of *Astranthium* and related genera. Hitchcock has published a taxonomic study of the genus *Nama.* A revision of the section *Gymnocaulis* of the genus *Orobanche* by Miss Achey has recently appeared. Friesner's work on the genus *Solidago* in northeastern America will prove of value to the botanists of that part of the country. A work worthy of note is Fuller's study of the *Orchidaceae* of Wisconsin, a comprehensive, well illustrated paper on the orchids of that state. Miss Allen's monograph of the American species of *Halenia* is an interesting study.

Arboretums.—During recent years an extremely valuable series of pamphlets and papers on native forest trees have been published. Among the more recent works of this type may be mentioned those on the forest trees of Oklahoma, Maryland, Louisiana, Texas, Illinois, Virginia, Kentucky, Alabama, Minnesota, New England, and Greater New York. The establishment of arboretums is of interest to the systematist, particularly to one interested in woody plants. The University of Wisconsin has enlarged its arboretum to a total of more than 400 acres. Swarthmore College will establish an arboretum aided by the Arthur H. Scott Horticultural Foundation. The Morris Arboretum at Chestnut Hill, Philadelphia, established by the Morris Foundation under the direction of the University of Pennsylvania, has been formally dedicated.

New Plant Species. — Numerous papers have been published describing new species of plants from all parts of the world. Papers concerning the flora of local regions include Fernald's comprehensive reports on the Newfoundland flora, briefer notes on the flora of the New Jersey pine barrens, additional records for the floras of Wisconsin, Missouri, Iowa and Ohio. A check list of the flora of South Dakota and a paper on the wild flowers of North Dakota have recently appeared. Miss Ashton has published a paper on the plants of the Rocky Mountain National Park.

Classification of Lower Plants.—Publications concerned with the lower plants include Miss Tilden's paper on the classification of algae based on evolutionary development, with special reference to pigmentation, and various notes on algae, ferns and fern allies.

MYCOLOGY

Mosaic Diseases. — The immediate practical applications of studies by the mycologist, especially the phytopathologist, lead to the publication of numerous papers in this field. Virus diseases continue to occupy the attention of many workers. A general paper of interest on this subject is that by Cook on the "Virus Diseases of Plants." Tobacco mosaic has been investigated by several workers and papers have appeared concerning mosaic diseases of potato, spinach, strawberry and dahlia.

Rust.—Studies on various rust diseases include papers on needle rusts of spruce, the quince rust, blister rust, wheat stem rust and leaf rust of grasses. A general paper of interest is that by Miss Rice on "Reproduction in the Rusts."

The crown gall has been reported for the first time on the giant cactus in which the structure of the gall tissue is analagous to that on other flowering plants studied. The crown gall of conifers and apples has also been investigated.

Other Diseases.—Other papers have been concerned with various diseases of citrus fruits, infections in corn plants, the cotton root-rot fungus, onion smut, *Fusarium* diseases of Freesias and peas, walnut yellows in relation to ash composition, manganese, iron, and other ash constituents, insect transmissions of peach yellows, downy mildew of tobacco, brown root-rot of tobacco, a new disease of dahlias caused by *Macrophomina phaseoli*, cytological investigations of the spike disease of sandal, and studies of lima bean scab. The fourth progress report on rose disease investigations will be of interest to the floriculturist. These contributions to our knowledge of plant diseases will greatly aid in their control.

Fungi Studies.—Systematic papers on the fungi include studies of the genera *Schizophyllum, Hypholoma, Godronia, Sclerotinia, Hypoxylon,* and *Podaxis,* and treatments of the genera of the Hydnaceae and Dacrymycetaceae.

Genetics. — Lindegren has continued a series of papers on the genetics of *Neurospora.* Papers have been published on the morphology of the developing fruiting body of *Lycoperdon gemmatum,* the cytology of the teliospores, promycelia and sporidia in *Puccinia malvacearum,* oxygen requirements of *Neurospora sitophila* for the formation of perithecia and the growth of mycelium, life histories of certain species of Hysteriaceae, and comparative morphological studies of myxomycete fructification. An interesting series of papers has appeared on fungi which attack nematodes.

Publications of general interest are those by Bisby on "The Distribution of Fungi as Compared with that of Phanerograms;" an historical survey by Stevens of "the Dark Ages in Plant Pathology in America: 1830-1870"; a bibliography on the "Environmental Factors in Relation to Plant Disease and Injury" by Wilson; and a summary by Chester on "The Problem of Acquired Physiological Immunity in Plants."

GENETICS AND CYTOLOGY

Chromosomes. — The present cytological investigations are for the most part so closely interwoven with the genetical studies it becomes advisable to discuss them under the same heading. Chromosome studies have continued to occupy the prominent position in this field. Investigations in *Nicotiana, Datura, Zea Mays,* and *Oenothera* have been continued. In addition papers discussing chromosomes in the genera *Gossypium, Rosa, Listera, Brodiaea, Ficus* and *Ulmus* have been published. Chromosome behavior in *Tradescantia* has been the subject of several papers.

Embryology.—The embryology of species of *Nicotiana, Melilotus* and *Saxifraga* has been investigated. Studies in inheritance include papers on hereditary radium induced variations in the tomato, the continuation of a series on the heritable characters of maize, inheritance of waxy endosperm in Sorghum, inheritance of fragrance in *Gladiolus* species crosses, inheritance in barley, inheritance of dwarfing in wheat, inheritance in a oak species hybrid.

Nuclear Divisions.—Studies of nuclear divisions have been made in *Digitalis,* tapetal cells of many angiosperms, the eusporangiate ferns, and the pollen tube of *Lilium.*

Phylogenetics.—Investigations of interest from the phylogenetic point of view include a continuation of Johansen's work on the morphology of the Onagraceae, Bold's paper on the life history and cytology of *Protosiphon botryoides* which confirms conclusions of certain previous workers that this genus correctly belongs in the *Siphonales* instead of the *Chlorococcales,* a cytological and phylogenetic study in the Cucurbitaceae, a discussion of the taxonomic and cytologic relationships of *Yucca* and *Agave,* and cytological studies of the genus Hieracium.

ECOLOGY AND PLANT GEOGRAPHY

Vegetation and Habitat.—Numerous investigations have been made on the vegetation of limited areas, among which may be cited the following: the vegetation and habitat factors of the Carrizo sands, native vegetation in the prairie hay district of north central Nebraska, the relation of soils and forest vegetation of the lake states region, forest associations in the uplands of the lower Gulf Coastal Plain, biological conditions in a Puget Sound lake, plant succession at the borders of a Kettle-hole lake on Long Island, an ecological study of Bryant's Bog, Cheboygan County, Michigan, a survey of geological, botanical and zoölogical interrelationships of Zion Canyon, Utah, with special reference to succession, alpine plant succession on James Peak, Colorado, and the vegetation of the Pike's Peak region.

Miscellaneous.—An interesting study has been made on the factors influencing the location of timber line. Other papers have been concerned with the development and survival of sp cies and varieties in planted pasture an historical survey of the effects c grazing on native flora, the decomp sition of certain types of forest litt under field conditions, the density c spruce and fir reproduction related the direction of exposure, and tl root system of longleaf pine on tl deep sands of western Florida.

BOTANICAL SOCIETIES

The American Association for tl Advancement of Science, includir the Botanical Section and its affil ated societies, held its annual meetir in Boston during the Christmas ho days. The program consisted of syr posia on subjects of general intere and individual reports of resear projects. The summer meeting of tl Association was held in Chicago connection with A Century of Pro ress Exposition. This meeting was a tended by numerous American wor ers and outstanding scientists fro other lands as guests of the Associ tion. The program included contrib tions by leaders in scientific resear from the nations of the world, ge eral symposia, and field trips. T southwestern division of the Americ Association for the Advancement Science held its meeting in Las Cruce N. M. in May. The meeting of tl Pacific Division and affiliated societi was held in June in Salt Lake City.

The Mycological Society of Ameri held a summer field meeting in t southern Appalachians in August wi headquarters at Highlands, N. C.

Fifth Pacific Science Congress.— A meeting of interest to many Ame can botanists was the Fifth Paci Science Congress held in Victoria a Vancouver, British Columbia, in Jun The discussions centered primarily scientific problems relating to t Pacific area.

MISCELLANEOUS PUBLICATIONS

Papers.—Publications in the fie of paleobotany include numerous d scriptions of species from vario horizons. Works of interest to t amateur and professional gardener i clude a paper on the Louisiana "red irises, books on natural rock garde ing, informal gardens, Bailey's work on the cultivated conifers in North America, Robbin's "Cure it with a Garden," "Gardening with Herbs for Flavor and Fragrance" by Helen Morgenthau Fox and books on the delphinium, rose and lilac.

New editions of standard works include a revised edition of Raber's Principles of Plant Physiology, the second edition of Heald's *Manual* of plant diseases which has much new material covering the advances recently made in phytopathology, virus and related diseases and other phases of the subject, a second edition of Holman and Robbins, *Elements of Botany*, and a new edition of Rigg's *College Botany*.

Ornamental Plant Exhibit.—The exhibition of plant forms used ornamentally at the Metropolitan Museum of Art in New York in coöperation with the New York Botanical Garden and the Brooklyn Botanic Garden has attracted much attention. Several articles on this exhibit have appeared in recent numbers of the *Journal of the New York Botanical Garden* and the *Brooklyn Botanic Garden Record.*

The Sachs anniversary has led to the publication of a series of papers on the life and work of Julius von Sachs.

Recent books of interest to the student of botany include Smith, *The Freshwater Algae of the United States;* Wells, *The Natural Gardens of North Carolina;* Saunder's popular account of the western wild flowers and their stories with numerous mentions of the work of early botanical explorers; an excellent and well illustrated book on western American alpine plants; Robbins and Ramaley, *Plants Useful to Man;* and L. H. Bailey's *How Plants Get Their Names,* a good discussion of the numerous problems of nomenclature.

ECONOMIC BOTANY

By H. K. Hayes

Professor, University of Minnesota

VERNALIZATION OF CROP PLANTS

The term used originally by Lyssenko or "Iarovization" in the Russian means "springization." It has been anglicized by White and Hudson of the Imperial Bureau of Plant Genetics, and the name "Vernalization" refers to the technic employed to accelerate sexual reproduction in plants. By suitable treatment the plants of various species can be made to mature in much shorter periods than normally. This should be of great value to plant breeders in making crosses between plants of different normal periods of maturity. Vernalization is reported to have been used widely in Russia for the commercial crop (over 250,000 acres) where the seed of winter wheat has been treated and sown in the spring. It is claimed that vernalized winter wheat seed, in some cases at least, yields better when sown in the spring than ordinary spring wheat.

According to McKinney & Sando (*Jour. Heredity* 24: 165-166, 169-179, 1933), the original discoveries of Lyssenko and a summary of the results of extensive trials in Russia are reported in three bulletins written in Russian. Sapehin (*Der Zuchter* 4: 147-152, 1932) gave a further report and presented rather convincing positive evidence of the value of the method. Gfeller, Derrick and Fraser (*Sci. Agri.* 13: 728-29, 1933), treated the seed of cereal crops "which consists of soaking the same in water until the germ swells conspicuously (approximately 16 hours) and exposing it to a temperature of 27° F. to 40° F. for 6 to 30 days in darkness." The length of time that the seed was kept in cold and darkness was shorter for varieties of spring than for winter cereals. McKinney and Sando summarized the methods of treatment in greater detail in the papers previously mentioned. They gave a table of seed treatment for corn, millet, sudan grass, sorghum and soy beans taken from the work of Lyssenko. This information consisted of the amount of water that the seed should contain, the temperature of the seed that is required during exposure in darkness and the length of treatment required.

PLANT PATENTS

In the *Journal of Heredity* (volume 24, pages 59-64, 1933), there is a description of 51 plant patents that have been issued since the first issued on August 18, 1931. A brief reference to the plant patent bill passed by the 71st Congress was made in THE AMERICAN YEAR BOOK for 1930. It was pointed out that the plants eligible consist of new and distinct varieties of asexually reproduced plants other than a tuber propagated plant or a plant reproducing itself without human aid. Thirty-one patents issued for flowers comprise 20 for roses, 5 for carnations, 4 for freesias and 2 for dahlias. With fruits 15 plant patents issued comprise 5 for plums, 4 for peaches, 3 for cherries, 2 for strawberries, and 1 for grapes while the miscellaneous list consist of one each of dewberry, bramble, pecan, mushroom and barberry. There is a comprehensive discussion of the present status of the plant patent law by the editor of the journal, Robert Cook, and by a patent attorney, R. S. Allyn of New York City. Dr. Cook points out some absurdities in statements regarding the origin of certain of these new types and urges the Commissioner of Patents (*Jour. Heredity* 24: 163-164, 1933), to set up a division or subdivision of plant patents with an examiner or associate examiner botanically qualified to administer the law.

NEW ANGLES IN VEGETABLE IMPROVEMENT

Australian Onion.—Jones of the University of California has given some interesting technics (*Proc. Amer. Soc. Hort. Sci.* 29: 572-581, 1932) which he has applied with success in vegetable breeding. Self fertilization has been used in purifying the Australian Brown onion. All lines showed some loss of vigor as a result of inbreeding. It then became necessa to intercross several lines to resto vigor. Crossing was accomplished protecting the crossing plot by a lig weight muslin cage. Flies grown und controlled conditions were introduc into the cage to act as pollinati agents.

Cantaloupes.—With cantaloupes the Imperial Valley, yield and quali of the commercial varieties availab are greatly reduced by attacks of po dery mildew. Spraying and dustin as control measures, were not sat factory and breeding was resorted. From extensive introductions a mix lot of seed from India produced n merous plants free from mildew b inferior in sugar content, flavor a shipping quality. Repeated backcross to commercial varieties were made. resistance was a dominant the plan carrying the factor for resistan could be selected and used in cros ing. The backcrossing rapidly fix the desirable qualities of the comme cial types. By 1934 sufficient seed resistant sorts should be available plant the entire acreage.

Cauliflower.—Another method considerable interest was applied breeding cauliflower and brocco Many plants set no seed when no mally self pollinated and are said be self incompatible, although seed se when pollination in the bud stage practiced. Self-incompatible lines c be carried on by bud pollination a crosses between them studied. Aft finding the desirable cross the breed can produce large quantities of se by planting two self-incompatible lin together.

ARTIFICIAL CULTURE OF SWEE CHERRY EMBRYOS

Certain varieties of sweet cher (*Prunus avium* L.), produce shrivel seed normally not viable. This cha acteristic of sweet cherries and oth stone fruits, such as plums a peaches, that normally ripen th fruit early, has greatly hampered t breeding of this group of stone fru as late ripening varieties have co monly been used as the female pare Tukey (*Jour. Heredity* 24: 7- 1933), has devised a method of ar ficial culture of embryos of shriveled seeds normally classed as sterile. The first procedure was to "split the inner or stony pericarp with a scalpel, cut carefully through the integuments, nucellus, and endosperm and drop the embryos in bottles containing nutrient agar." By a later method "the chalazal end of the seed was cut through perpendicularly to the axis so as to cut across the tips of the cotyledons and expose them to sunlight. They were then dipped in calcium hypochlorite solution and pressed into quartz sand with the micropylar end down and the chalazal end of the cotyledons even with the surface of the sand yet exposed to sunlight." Later the seedlings obtained were transplanted to pots in the greenhouse. Other details of the method are given by Tukey who emphasized the fact that the method will permit the breeder to use early ripening varieties of stone fruits as both male and female parents and therefore greatly facilitate the breeding of early stone fruits with desirable combinations of characters.

DISEASE RESISTANCE IN PLANTS

Oats.—Gordon & Welsh (*Sci. Agr.* 13: 228-235, 1932), have studied oat stem rust in relation to the nature of the organism, *Puccinia graminis avenae,* causing the disease and the breeding of resistant varieties. Nine physiologic forms have been isolated from over 1,000 collections of stem rust. These forms can be determined only by their reaction on several varieties of oats known as differential hosts. Considerable progress has been made in producing high yielding varieties of oats resistant to the more prevalent forms. The reaction of seedlings in the greenhouse to rust is controlled by the same genetic factors that condition the host reaction of mature plants in the field.

Cabbage.—Walker (*Jour. Agri. Res.* 46: 639-648, 1933), concludes that resistance and susceptibility to the yellows organism in the Jersey Wakefield cabbage variety is dependent upon a single genetic factor difference. Therefore pure lines that are completely resistant in succeeding generations can be isolated. By rigid selection for type and conformity it was possible to combine the desirable characters of this variety with resistance to yellows.

Pineapples. — Collins and Hagan (*Jour. Heredity* 23: 459-465, 503-511, 1932), review the literature on nematode resistance in plants and present data on resistance of pineapples to attack by the root knot nematode, *Heterodera radicicola.* Plants were grown in boxes under the shelter of a lath house and when the plants had produced roots varying from 5 to 8 inches in length one-half of the plants of each variety were inoculated with nematodes by placing about 50 egg masses on or just in front of the growing point of the visible roots. The uninoculated plants served as checks. No variety or plants of pineapples were found to be immune although some varieties were less severely damaged in their roots when attacked. This tolerance or resistance may be of great practical value. Percentage reduction in length of roots was determined by the following formula: Percentage reduction $= 100 \times \frac{C—I}{C}$ where C is the mean length of the roots of the check plants and I the mean length of the roots of the infested plants. Lot 520, (F_1 hybrids of Wild Brazil x Cayenne, a commercial variety), were highly tolerant to the effects of heavy nematode attack, showing no diminution in root length during the first 8 inches of growth. All varieties appear to suffer a reduction in quantity of fine fibrous roots although lot 520 and two other varieties were less severely injured in this respect than other varieties. Of the two commonly grown commercial varieties, Hilo appeared consistently superior to Cayenne in tolerance to nematode infestation.

SOY BEANS

Two comprehensive publications of the Illinois Agricultural Experiment Station (*Bull.* 384, 386, 1933), discuss various phases of the soy bean industry. The crop has become of importance in United States only during the last 15 years. Some of the reasons for the growing importance of soy beans are high protein content, suitability for many uses including the feeding of livestock, adaptability in crop rotations, value as a cash crop, and merit as a soil builder if used properly. In bulletin 384 there is a discussion of the use of genetics and breeding in soy bean improvement. The author believes the opportunities to obtain still more desirable varieties are very great.

WASHINGTON WHEAT PRODUCTIONS

Gaines (*Scientific Paper* 244, Exp. Sta. Washington, 1932) has discussed the value to the Northwest of hybrid wheats produced by the State College of Washington. This work was started prior to the rediscovery of Mendel's Laws of inheritance in 1900. Four hybrid varieties are now of importance. There are Albit, Hybrid 128, Ridit and Triplet, representing about one-third of all the wheat grown in the Pacific Northwest. The hybrids have given 18.3 per cent higher yield in the college trials. On the basis of yields obtained, acreage grown by farmers, prevailing market prices, and a 10 per cent increase in yield of the hybrids over common wheats, Gaines estimates the college hybrids have added $50,000,000 to the wealth of the Pacific Northwest during the last 25 years. Ridit and Albit are smut resistant and there has been a steady decrease in dockage in this area due probably to the use of resistant varieties.

CHROMOSOMES AND PLANT BREEDING

Clausen (*Svensk Botanisk Tidskrift* 26: 123-136, 1932) has given further data in support of the idea that the commercial tobacco species, *Nicotiana tabacum,* originated through the doubling of chromosome numbers of a hybrid between *N. sylvestris* and *N. tomentosa* or close allies of these species. These results have been obtained by studies of chromosome numbers, sizes, the pairing of chromosomes in hybrids, and by studies of differential characters. Doubling of chromosome numbers appears of considerable value in many economic plants and with the further development of technic (*Randolph, Nat. Acad. Sciences* 18: 222-228, 1932), may prove to be a valuable method of producing horticultural novelties. Winge gave a history of the origin of 24 such hybrids (*Svensk Botanisk Tidskrift* 26: 107-122, 1932). Darlington has written an interesting book *Chromosomes and Plant Breeding* (Macmillan, London, 1932) that will be of value to plant breeders and horticulturists.

PROGRESS IN PLANT BREEDING

Hunter and Leake are the authors of a book entitled *Recent Advances in Agricultural Plant Breeding,* (Blakiston's Sons & Co., Inc., Philadelphia, 1933). To quote from the foreword by Sir R. H. Briffin: "The value of this book lies not only in showing concisely how, in a single generation, a surprising degree of control has been obtained over many of our important crop plants, but in the promise it holds out that the ingenuity of the plant breeder may yet solve many of the pressing problems" now confronting producers. The book is of particular interest to American readers as over half consists of a discussion of the results with crops of subtropical and tropical regions.

ENTOMOLOGY

By E. Porter Felt

Chief Entomologist, Bartlett Tree Research Laboratories

PLANT QUARANTINES

General.—A comprehensive study of this complicated question from the biological and economic aspects has been published as Bulletin 553 by the University of California under the title "The Efficacy and Economic Effects of Plant Quarantines in California." The desirability of such consideration on a national basis is indicated by the call issued by the Federal quarantine administration for a hearing to "Re-examine the underlying principles involved in the interpretation and enforcement" of the nursery stock, plant and seed quarantine.

The Japanese beetle quarantine as promulgated in January, 1933, applied to all of Connecticut, Delaware, Massachusetts, New Jersey, Rhode Island and the District of Columbia and to parts, in some cases large parts, of Maryland, New Hampshire, New York, Pennsylvania, Vermont and Virginia. There is a prospect that recently discovered infestations at Portland, Me., and Keyser, West Virginia, may result in the extension of this quarantine to Maine and West Virginia.

European Corn Borer.—The revocation of the Federal European corn borer quarantine in July, 1932, on account of inadequate funds for its enforcement, resulted in 27 States quarantining against 13 northeastern States. Regulations, largely uniform, have been issued by 18 States, while eight others accept only Federal certificates.

Pink Boll Worm.—The pink boll worm quarantine was revised September 19th with no essential changes, except the division of the affected section into heavily and lightly infested areas, provision being made for the shipment of cottonseed from the latter. Later the regulated area was extended to include Gaines County, Texas.

Date Palm Scale Insect.—The date palm scale insect quarantine was revised to exempt the Phoenicoccus scale from its provisions, which are now restricted to the Parlatoria scale.

Packing Materials. — A Federal quarantine, No. 69, on packing materials became effective July 1st and applies especially to straw and other plant materials used for packing.

INSECT INJURIES

Beech Scale Insect.—The introduced beech scale insect has marked economic importance, owing to the recent demonstration that its feeding produces conditions favorable to invasion of a deadly Nectria or plant disease, which latter has killed 50 per cent of the trees over twelve inches in diameter in extensive beech stands in the Canadian Maritime Provinces. The scale insect and the disease occurs in northern New England.

The European elm bark beetle has likewise become important, since it is presumably the principal carrier of the deadly Dutch elm disease, a trouble found the past summer widely and somewhat generally prevalent in a number of sections within fifty miles of New York City. The disease was evidently brought in on infected elm burl logs.

The Japanese beetle was not so generally destructive, there being a pronounced reduction of the pest in southern New Jersey and about Philadelphia. However, the operation of 980 traps by the State of New Jersey resulted in the capture of 47 tons of beetles. There have been marked improvements in the design of the trap. An unusual development was the presence of large numbers of the beetles along 100 miles of ocean and bay shore frontage. The insects proved a nuisance on some Staten Island and Chesapeake Bay Beaches.

European Corn Borer.—European corn borer infestations were found in eight Wisconsin counties bordering on Lake Michigan and in two counties next to the lake shore sections. This insect now occurs from eastern Wisconsin, Michigan and Indiana through the Northern States and Canada to the Atlantic Coast and southward to northeastern Virginia. The first generation of the borers caused much damage to early sweet corn in Connecticut and Rhode Island. Reports indicate that the Southern corn ear worm has occasioned as much trouble as the European corn borer in central and western New York.

The gipsy moth defoliated much larger areas the past summer than at any time subsequent to 1929. The infestation is greater northward in Maine and New Hampshire than previously recorded, and the numbers of insects have increased greatly in areas just east of the Connecticut River.

Fall canker worms appeared in unprecedented numbers in southwestern New England and southeastern New York, stripping the leaves from millions of trees, in some instances literally square miles of woodland were defoliated.

Pine Shoot Moth and Tip Beetle.—Certain pines, the extensively planted red pine and the earlier favored Austrian pine, along the northern Atlantic Seaboard suffered severely from the European pine shoot moth and the pine tip beetle respectively.

The chinch bug, long considered a grain pest of the drier regions of the mid-West, has seriously damaged the sod of many lawns and golf courses in the northeastern United States. It was unusually abundant from central Missouri to northeastern and central Oklahoma.

Grasshoppers were extremely abundant and injurious in the Dakotas, eastern Montana and Minnesota, although notable control was obtained in Minnesota.

BIOLOGICAL CONTROL

The utilization of parasitic or predaceous insects for the control of injurious species is based on sound biological principles. A parasite of the Oriental moth was introduced in 1929 and available data indicate a progressive increase in the percentage of parasitism, that for 1933 being more than 50 per cent. Four of the insect enemies of the gipsy moth introduced in earlier years into New England where they are now effective parasites, have been found in the gipsy moth infestation discovered last year at Pittston, Pa. A parasite has been reared from the elm leaf beetle and the European willow leaf beetle, both introduced pests. Five species of Japanese beetle parasites have become established. The breeding and liberation of the tiny Trichogramma egg parasite of a number of destructive insects has continued in various States from Connecticut to the Gulf regions. Recently published data indicate very material benefits from the liberation of these parasites in sugar cane fields.

INSECTICIDES

Studies of insecticides, especially those which may be substituted for lead arsenates, have been pursued unremittingly in the laboratories of the Federal Government and those of various states. These investigations have been stimulated by the regulation limiting the lead tolerance to .02 grain per pound of fruit for this year and .014 per pound of fruit for next year. As an outcome of this, there have been embargoes against apples from certain states and growers of cauliflowers using poison have experienced difficulties in marketing their crops. A new departure in the application of insecticides is found in "Vapo Dust." This is practically a giant atomizer with adjustments permitting the application of definite amounts of an oil or other material. It is claimed to be particularly effective in the control of leaf hoppers, thrips and certain scale insects.

UNEMPLOYMENT AND ENTOMOLOGISTS

There have been serious reductions in the compensation of scientists, and as a result of economic pressure a number of entomologists have been obliged to seek new positions. The NRA has made possible a continuance of the extremely valuable gipsy moth work, alloting $2,000,000 and insisting that as much as possible be done by the unemployed. Men of the Civilian Conservation Corps have been utilized in various large scale insect control projects in addition to the gipsy moth, namely, in the East in the control of the white pine weevil and the European pine shoot moth on state plantings, and to some extent on private plantings. Similar work upon other insects has been undertaken in the West. These may prove to be the beginnings of practical methods of controlling insect pests under woodland conditions.

PERSONNEL

Dr. Marlatt.—The retirement of Dr. C. L. Marlatt as Chief of the Federal Bureau of Entomology marks the close of a noteworthy governmental service covering a period of 45 years. During this time, the appropriations for entomological work of the Federal Government have increased from approximately $50,000 to about $6,000,000. It was he who took a leading part in securing the enactment of the Federal quarantine law and administered this with a high degree of success for 17 years. Dr. Marlatt has been succeeded by Dr. Lee A. Strong, widely known because of his quarantine administration in the State of California and the Federal Bureau of Plant Quarantine.

Dr. Osborn.—The retirement of Dr. Herbert Osborn and his appointment as Professor Emeritus at the Ohio State University calls attention to a long and remarkable career as an economic entomologist and a most successful teacher.

NECROLOGY

Dr. W. J. Holland, a noted palaeontologist, formerly director of the Carnegie Museum at Pittsburgh, and a widely known authority on butterflies, died Dec. 13.

Dr. E. B. Williamson, an ardent student of dragon flies, died Feb. 28.

Dr. F. W. Goding, widely known because of his studies on tree hoppers or Membracidae, died May 5.

Dr. C. R. Phipps of Maine, one of the younger, promising investigators, died June 21.

Dr. C. W. Johnson, Curator of the Boston Society of Natural History, a noted authority on the flies or Diptera and a student of distribution, died July 19.

TEXTS AND MONOGRAPHS

Several popular works have appeared during the year. *Insects, Man's Chief Competitors* by W. P. Flint and C. L. Metcalf is a popular account of some of the more striking phases of insect life. *Fighting the Insects, The Story of an Entomologist* by the veteran Dr. L. O. Howard, is an autobiographical account of the opportunities coming to a leading entomologist. *Insects,* a book for teachers, students and all others interested in the vast world of the six-footed, is a popular volume published by the Western Nature Study Series. The student of insect habits and environment will find much of interest in *Colony Founding Among Ants* by Prof. W. M. Wheeler and *Jungle Bees and Wasps of Barro Colorado Island* by Phil Rau.

More technical works are: *An Economic Entomology of the West Indies* by G. N. Wolcott, *Methods for the Study of the Internal Anatomy of Insects* by Prof. C. H. Kennedy, and *The Morphology of the Insect Abdomen* by R. E. Snodgrass. The second and third supplements of the *Catalogue of Coleoptera of America North of Mexico* by C. W. Leng and Andrew J. Mutchler.

Two important works on American insects are due to appear early next year; namely, a revision by C. H. Curran of Williston's *Classical Manual of North American Diptera* and an extended monographic account, *Termites and Termite Control,* issued by the University of California.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Academy of Natural Sciences of Philadelphia, 19th and the Parkway, Philadelphia, Pa.

American Assn. of Economic Entomologists, Amherst, Mass.

American Assn. of Museums, 2 W. 46th St., New York City; c/o Smithsonian Institution, Washington, D. C.

American Microscopical Society, Kansas State Agricultural College, Manhattan, Kan.

American Museum of Natural History, 77th St. and Central Park W., New York City.

American Nature Assn., 1214 Sixteenth St., Washington, D. C.

American Nature Study Society, City Hall, Minneapolis, Minn.

American Ornithologists' Union, 1939 Biltmore St., N. W., Washington, D. C.

American Phytopathological Society, Bureau of Plant Industry, Washington, D. C.

American Society of Naturalists, University of Pennsylvania, Philadelphia, Pa.

American Society of Zoologists, Rutgers University, New Brunswick, N. J.

Boston Society of Natural History, 234 Berkeley St., Boston, Mass.

Botanical Society of America, Cornell University, Ithaca, N. Y.

Entomological Society of America, Kansas University, Laurence, Kan.

Eugenics Research Association, Cold Spring Harbor, New York.

Field Museum of Natural History, Roosevelt Road and Lake Michigan, Chicago, Ill.

Museum of the Comparative Zoology, Cambridge, Mass.

National Assn. of Audubon Societies, 1775 Broadway, New York City.

New York Microscopical Society, American Museum of Natural History, New York City.

New York Zoological Society, 101 Park Ave., New York City.

Paleontological Society of America, American Museum of Natural History, New York City.

Reptile Study Society of America, Inc., 108 Convent Ave., New York City.

U. S. National Museum, Tenth and Constitution Ave., Washington, D. C.

DIVISION XXIII

MEDICAL SCIENCES

PHYSIOLOGY

By Percy G. Stiles

Assistant Professor, Harvard Medical School

THE HUMAN BRAIN

The text-books and reviews of Physiology are filled for the most part with accounts of experiments on the lower animals and inferences therefrom. Manifestly, the procedures can rarely be employed with human subjects; scientific curiosity does not justify them. Necessary surgery, however, has frequently contributed to physiological knowledge; this was eminently true of the hospitals caring for the wounded of the World War. Still more recently operations on the brain of man have revealed some surprising facts. The layman will be most impressed by the extent of injury which can be survived. It is now a matter of record that several patients have lived for months after total removal of the right cerebral hemisphere. The surgeons have resorted to this extreme measure when malignant disease in the region has left no other course open.

It has long been assumed that in right-handed subjects the left hemisphere has a superior organization. Destruction of the right half is followed by marked disabilities but not, we are told, by distinct subtraction from intelligence and personality; hence, the operation has seemed worthwhile because of the continued interest of the subject in his surroundings. It is held that removal of the left hemisphere would result in a mental blank. The operation would probably never be indicated for the disease itself would have blotted out consciousness.

A case reported within the year by Gardner of Cleveland seems to present the most favorable aspects of any so far observed. The occasion for this radical surgery is most likely to arise in later life but the Ohio patient was a young woman. Not only were mental faculties retained but some success in walking was achieved. This had not been anticipated for paralysis of the left leg has been accepted in other subjects as inevitable. In fact, it is most interesting to learn that in Gardner's case there was little or no voluntary control of the left half of the body. Movements of the left leg could not be made in response to directions given by the examiner. But the pressure of the foot upon the floor set up more or less perfectly the reflexes fundamental to walking.

Dandy of Baltimore, discussing his own removals of the right hemisphere, dwells on the extraordinary localization of the mechanisms of intelligence. It is not only true that the gray matter of the right half seems quite without importance, but it is known that much of the left hemisphere may be ravaged by disease without definite impairment of mentality. We are led to stress the close relation between our higher capacities and the integrity of a part of the left hemisphere, roughly its middle third. When the necessity has arisen for tying an artery which supplies this region no return of consciousness has ever been noted.

NEW USE FOR INSULIN

This product has now been used for more than ten years in relieving the diabetic. A secondary application of its properties is of interest:—the promotion of a gain of weight in non-diabetic subjects. This possibility is due to a very simple sequence, namely, the development of a keen appetite following injection of the drug. It may be recalled that the most evident objective effect of insulin is a lowering of the blood sugar. This is accompanied by insistent hunger which may be distressing if the dose is a large one and be followed by collapse. With proper caution it is possible to sharpen the desire for food without untoward results.

Lack of appetite is ordinarily the chief obstacle to building up the body weight when this is considered desirable. If a lively craving for food can be set up the intake will be largely increased. The power to digest and assimilate the diet is not likely to be at fault. Accordingly, the patient on insulin will eat beyond his current needs and there will be a storage of fat, possibly also of protein if the original state was one of decided malnutrition. The contrast between the effect of insulin and that of thyroid preparations may be noted. Both may stimulate the appetite, but thyroid at the same time speeds up the destructive processes in the body and the net result is loss rather than gain in weight.

INSTINCT IN FEEDING

In the struggle for existence there must be considered both the external situation of the animal—the food within reach—and the internal factor of instinctive choice. One would like to know how well the selection is made when the supply is ample and varied. Is instinct as efficient as the planning of the expert in nutrition? In the study to be cited the criterion of success was the rate of growth of young rats. Access to several dishes was allowed and the consumption from each source measured. It turned out that the animals were choosing such an assortment of food that the protein obtained was about 6.5 per cent of the total. When the rats were denied freedom of choice and limited to a ration compounded for them by the experimenter it was found possible to induce much more rapid growth. The greatest rate of increase was obtained when the proportion of protein was advanced to about 20 per cent. of the mixture. This is three times as much protein as the animal found for itself. One is tempted to infer that instinct, in this connection, has proved inadequate. On the other hand, it may be urged that the most speedy growth is not necessarily the best type of development. Perhaps the adult is more hardy when the progress to maturity has been more gradual.

A CASE OF SYMBIOSIS

This term is used to denote an association of unlike organisms with benefit to both. It is distinct from parasitism in which the advantage is entirely with one of the two. The swarming bacteria of the alimentary canal are usually regarded as parasites though they may be of some service to their hosts as they initiate the digestion of certain refractory vegetable foods. Attention has recently been directed to a rather striking instance of a service to nutrition which is apparently rendered by intestinal micro-organisms. The animal concerned is the sheep.

Sulphur, as an element, is reckoned to be indigestible. It is not ordinarily absorbed from the tract. Yet it has now been shown that, when sulphur is mixed with the food of sheep, there is an increase of sulphur in the wool. It is found there in the compound cystine. The conclusion is favored that inorganic sulphur, which the animal cells could not assimilate, is appropriated by the bacteria of the intestine. It becomes truly organic—probably protein—sulphur. The bacteria are continually multiplying, but are also being overtaken by death; as they perish they become available food material.

LOSS OF CHLORIDE IN THE SWEAT

The magnitude of the water-loss through the skin attending muscular activity at high temperatures has long been familiar. It is the chief cause of the rapid weight reduction experienced by athletes during their contests. Thirst follows, and the initial weight is eventually restored. Attention has lately been drawn to the fact that such sweating entails the removal of great quantities of chloride from the body. The discharge of the water is serviceable to the system; heat is made latent by its evaporation. The loss of chloride may be detrimental. There seems to be no mechanism to prevent the escape of mineral salts while sweating proceeds.

Clearly enough, if a man keeps losing both water and chloride from his tissues and replaces only the water he is disturbing the composition of the body-fluids, a change not well borne. Students of industrial hygiene have been led to believe that chloride reduction is a casual factor in heat prostration. In some factories workers are required to swallow salt tablets from time to time. Instinct seems somewhat at fault here; one would say offhand that the more intense the thirst the stronger the aversion to salt. A craving for salt like that of the ruminants might be expected.

Few animals have a well developed system of sweat glands. The dog, for example, can lose but little water through the skin. Under the necessity of eliminating heat a dog pants, and water is actively evaporated from the open mouth, the extended tongue and the respiratory passages. This does not involve the loss of salt. A recent study shows that a dog when allowed to drink at will quickly recovers from the weight loss associated with exposure to heat. The regaining of the original weight by a man similarly reduced is less prompt. It is likely to be delayed until food as well as water has been ingested. Compensation for chloride loss will usually depend on the more solid part of the ration.

COPPER AND BLOOD BUILDING

The discoveries of physiologists from time to time remind us of the unexpected value of mineral compounds in the intake of the body. We are told that among all the essentials of the diet it is the calcium (lime) which is most often below the optimal allowance. Iron is a necessary constituent of the red blood corpuscles which, therefore, cannot be formed except as a supply of this element is afforded. (The fact has to be considered that the body is so successful in conserving its iron that only minute additions day by day are required.) A relation between copper and the manufacture of blood cells has lately been reported.

Copper is not surely detectable in human blood though there are lower forms of life, such as the crustacea, in which its position is comparable to that of iron in ourselves. It is, nevertheless, true of mammals that the restoration to normal of impoverished blood is promoted by seeing to it that the requisite iron shall be accompanied by a trace of copper. Without itself entering the cells as part of their permanent composition it provides a condition favorable for their development. We are reminded of the catalysts in general chemistry and the enzymes in biological reactions.

THE MYSTERY OF MUSCLE CONTRACTION

Here is a matter of prime interest which still baffles a final analysis. It has been attacked both from the chemical and from the physical side, but many questions remain unanswered. Down to the present time each fresh discovery has seemed to complicate rather than to clarify the situation. Formerly there was no bar to the assumption that a muscle works on the general principle of the steam engine. It was held that fuel was burned with release of heat and that the heat was in part convertible to mechanical work. This seemed in reasonable agreement with the obvious demand for extra oxygen during exercise.

Then came the demonstration that a muscle may release a great deal of energy in the absence of a supply of oxygen. The older conceptions required a radical revision. The oxidative process came to be associated not with the development of tension, but with restoration of the capacity to work, a recharging more or less like the renewal of a storage battery after use. Several distinct reactions are now known to occur in muscle, all liberating energy and involving compounds which did not figure in the earlier discussions. It is difficult to decide which of these chemical changes have to do with the act of contraction and which with restoration.

An extreme position has been taken by a British investigator. He is disposed to maintain that all the chemical reactions taking place in muscle are subsequent to the mechanical phase. If this view is correct the contraction of a muscle is like the snap of a spring which has been forcibly coiled and held subject to release. It appears analogous to the lock of a gun in which energy has been stored by raising the hammer and now awaits release through the trigger. Again, it is like the pile-driver with its weight ready to drop; chemical processes have necessarily attended the raising of the mass, but no further ones are needed for its fall.

PATHOLOGY

By Max Trubek

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MYASTHENIA GRAVIS

The treatment of myasthenia gravis has varied with the theories concerning its etiology. The progress of the disease is not infrequently interrupted by periods of remission but its course is usually one of prolonged invalidism without recovery. The question of central nervous system pathological alterations from the study of fatal cases of this disease is still a controversial subject.

Oppenheim clearly called attention to the absence of distinctive anatomical alterations in the central nervous system to explain the symptoms of patients dying with myasthenia gravis. He concluded that the changes heretofore described could be explained as the result of agonal manifestations. The differentiation of this condition from true bulbar paralysis was established by Erb. Kauffman, after a complete metabolic study of a patient with myasthenia gravis, considered as his most important finding the presence of increased amounts of lactic acid in the urine and blood. He believed the disease to be the result of a defective oxidation process in the liver and, therefore, attached great significance to the case reported by Bolt who found cirrhosis of the liver in a patient with myasthenia gravis. Kauffmann, using the zinc chloride method, found very low creatinine values in the urine during one period and reported creatine in small amounts. He made no comments as to their presence.

Spriggs confirmed the finding of diminished excretion of creatinine in the urine of patients with myasthenia gravis. This fact has been repeatedly observed. Pemberton, in addition, noted as a constant finding the loss of calcium and strengthened the conception of the primary metabolic nature of the disorder. Diller and Rosenbloom substantiated this observation of calcium loss and suggested that the symptoms of myasthenia might arise because of some failure of the body to use this substance, so important in muscle function. Bookman and Epstein, however, found no abnormality in the calcium metabolism and obtained no benefits with calcium therapy. They did observe with a meat-free diet a diminished urinary creatinine and a creatinuria in patients with this disease. Other abnormal chemical constituents have been reported in attempts to understand the condition. Marburg recently found a high blood magnesium in a patient with advanced manifestations and sought to explain the symptoms by the paralysing effect of this substance upon the nerve endings. These unusual findings have been made in isolated instances, the creatine-creatinine variations in the urine have been more constant observations.

MUSCULAR DYSTROPHIES

Milhorat and co-workers in the laboratory of Prof. Karl Thomas at the Leipzig Physiolgisch-Chemisches Institut, made a distinct advance in the available knowledge by extending the experiments of Gibson and Martin and of Brand and co-workers regarding the influence of various ingested substances upon the creatinuria of patients with muscular dystrophies. They were investigating the precursors of creatine and obtained results in accord with those of Brand and co-workers after feeding glycocoll. There was a rise in the urinary creatine on a creatine-creatinine free diet but, continuing the feeding of glycocoll, noted a subsequent drop in the amount of creatine to a new low level of excretion. Certain patients showed a concomitant clinical improvement; many, a chemical improvement: an increase in the urinary creatinine, a decrease or even disappearance of the creatinuria, and an improved ability to retain ingested creatine. None of the other amino acids or any of the guanidino-acids which were fed produced results at all comparable with those when glycocoll had been given.

Muscle biopsies were studied by Krauspe and Hueck at the Leipzig Institut before therapy and subsequent to prolonged administration of glycocoll. Milhorat recognized that where muscle degeneration with fibrous or fat replacement had been complete there could be no histological restitution and in such cases no clinical improvement was to be expected. Ultimate improvement depended upon the number of fibers not yet destroyed. From the pathological findings together with the variations in the clinical course of his patients and the method of chemical response after glycocoll therapy he characterized his cases as early or advanced stages of benign or malignant types of the disease. A new and better conception of the nature of the metabolic disorders in the muscular dystrophies has been given us.

Remen, using the methods described by Milhorat, Thomas and Techner, treated a patient with myasthenia gravis and obtained clinical improvement together with the changes in creatine values resembling those reported for the progressive muscular dystrophies after glycocoll therapy. Additional favorable reports by Dr. Boothby give encouraging confirmation to the good results in our own patient. He has knowledge of fifteen patients with myasthenia gravis all of whom have shown improvement after glycocoll therapy. Some of his own cases showed the subsequent rise in urinary creatine.

The apparently uniformly good results with this therapy in myasthenia gravis is perhaps best explained by Milhorat's conception for the cases of muscular dystrophy: that restoration of function is commensurate with the extent of muscle preservation. In myasthenia gravis the muscle fibers are relatively unchanged in contradistinction to certain cases of progressive muscular dystrophy. The therapeutic results may be analogous to the benefits after anti-luetic treatment, one does not expect restitution when there has been fibrous replacement. There is need for earlier diagnosis and proper evaluation of the pathological status of patients who are accepted for treatment. Indifferent clinical results, such as has been reported after therapy in severe cases of progressive muscular dystrophy, will, therefore, have to be critically interpreted.

Accurate diagnosis is important, differentiating particularly cases of central nervous system lesion, notably the spinal atrophies. Such cases are not benefited and do not show the characteristic rise in urinary creatine after glycocoll therapy. This fact, properly determined, is an important test in an uncertain differential diagnosis. Milhorat has devoted a separate chapter in his most recent publication to this important phase of the work.

More recently, Milhorat working at Cornell University Medical College, has perfected his creatine tolerance test. In all cases of primary myopathy there is a diminished ability to retain creatine as measured by its excretion in the urine, after previous ingestion of glycocoll. In patients with neuro-muscular disease associated with organic neurological pathology, there was no diminution in the ability of the organism to retain ingested creatine after the feeding of glycocoll. All patients with myasthenia gravis in whom this test was applied showed the metabolic alteration associated with the muscular dystrophies. In the same laboratory Shorr found in patients with exophthalmic goitre, showing a creatinuria, analogous response to glycocoll administration as exhibited by the patients suffering with muscular dystrophies. This characteristic response was altered when the basal metabolism returned to normal either after operation or the administration of iodine.

EXPERIMENTAL PRODUCTION OF CANCER

The importance of the role of bacteria and protozoa as a cause for malignant growth, although never completely discarded, has in recent years been held somewhat in disrepute by leading authorities. Factors of heredity and metabolic or chemical variations in cellular growth associated with chronic irritation have been considered of great importance, in addition to the definitely proven carcinogenic substances derived from coal tar products. Martland has demonstrated the high proportion of bone sarcomas arising in victims late in the course of radium poisoning and has reproduced this type of cancer in animals by injection of radium containing solutions. He has suggested that this physical agent is perhaps a significant factor for cellular stimulation in other malignant tumors where its presence has heretofore not been suspected. The reproduction of tumors by the filterable virus has as yet been limited to those occurring in the fowl.

In the article appearing in the *U. S. Public Health Reports,* March 31, 1933 by T. J. Glover and J. L. Engle, the bacterial cause of certain cancers again receives vigorous impetus. The following is quoted from this most unusual report:

"The purpose of this report is to place on record the production of metastatic malignancy in one of a group of guinea pigs innoculated with a culture containing a spore-bearing microorganism which was isolated, on special medium, from the tissue of a microscopically proved carcinoma of a human breast. The microorganism was again recovered from the malignant tissue of the animal herein reported.

"The innoculation of the culture was made in the mammary region of an adult female guinea pig (a discarded breeder) on November 5, 1932. The animal was observed at frequent intervals until sacrificed.

"On November 8, a rather evenly distributed infiltration was noted in the region of innoculation. This slowly became localized into a well-defined indurated mass about 2.3 cm in width and 3.4 cm in length. It was noted on December 22 that isolated nodular areas were developing in the region.

"On January 9, 1933, the nodules were noted as enlarging and the inguinal glands were distinctly palpable about two weeks later.

"On February 20, 1933, the nodular areas in the breast region and the glands in the inguinal region had increased in size. On February 24 weakness of the animal was noted, other conditions remaining substantially the same.

"On February 28, the animal was very weak and was chloroformed.

"The following report on the microscopic findings in this guinea pig was submitted by Surg. R. D. Lillie, of the United States Public Health Service, in charge of the work in pathology at the National Institute of Health: . . . . The new growth has apparently arisen in breast tissue, resembles lactating mammary acini in histologic structure, and is identical in structure in the primary and in the various metastatic masses. In the invasion and destruction of muscular tissue and in the production of distant metastases it fulfills two of the criteria of malignancy. Differentiation appears to be of high grade; anaplasia, conversely, slight.

Diagnosis—Malignant adenoma with metastases in lymph nodes, omentum, and kidneys.''

CIRRHOSIS OF THE LIVER

Using the classification formulated at the last Congress of Geographical Pathology, Klemperer distinguishes three types of cirrhosis: 1. Laennecs cirrhosis. 2. Biliary cirrhosis. 3. Toxic cirrhosis. ''The differentiation between hypertrophic and atrophic cirrhosis has been abandoned.''

We are usually uncertain concerning the etiological agent in most individual cases. We know that a toxic cirrhosis may follow in a recovered case of acute or sub-acute yellow atrophy due either to a known toxic agent such as cinchophen or arsphenamine or to an unrecognized toxic substance. ''Conspicuous parenchymal regeneration is characteristic of these chronic cases (of liver atrophy) and this leads to the picture of coarse nodular or toxic cirrhosis.'' (Klemperer).

The importance of ethyl alcohol as the cause of Laennecs or ''alcoholic'' cirrhosis has been eliminated by most laboratory investigators and clinical observers. During the past eighteen years Dr. F. B. Mallory has failed to produce the typical lesion experimentally using in addition to ethyl alcohol all the possible contaminating substances found in the cheaper brands of liquor. Over thirty substances were tried, including methyl and amyl alcohol, oil of juniper, turpentine, creosote, salicytic and pyroligneous acids, furfurol, sulphites, lead, copper, tin, aluminum, antimony and arsenic.

The lesion of ''alcoholic'' cirrhosis, according to Mallory begins ''as very fine acidophilic granules in the cytoplasm of the liver cells. They enlarge, coalesce and form a hyaline reticulum that often surrounds the nucleus. . . . I have always regarded the reticulum as the fingerprint of the agent that causes this type of cirrhosis. It is the only clue to its identity that we possess.''

Identical microscopic lesions in the liver cell were produced in rabbits and guinea pigs with small daily doses of the element yellow phosphorus. The typical gross and microscopic picture of ''alcoholic'' cirrhosis occurred after four and one third months with a daily dose of 0.33 mg. per kilo body weight and after six months with a smaller dose, 0.25 mg. per kilo body weight. This lesion could not be reproduced using any of the phosphorus compounds. Dr. Mallory concludes that the phosphorus may get into the alcohol and liquors by the acid erosion of iron and tin plate vessels and containers.

MEDICINE

BY NORMAN PLUMMER

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GENERAL

Throughout the past year (1933) the war against disease has continued on many fronts. Activity in the United States and many other countries has been hampered greatly by the economic depression, but as physicians everywhere minister to their patients they make observations, perform experiments, and arrive at new conclusions which add to the general knowledge of disease, especially as applied to its treatment and prevention. The year 1933 can boast no contribution comparable to that of insulin, liver extract, diphtheria antitoxin, or the other milestones of medical advance. Such epoch-making discoveries appear only after long and arduous accumulation of information — as in filling a receptacle, finally, one drop is enough to change the entire physical state. The intensity of warfare depends largely upon the strength of the enemy assailed.

CANCER

Because of its tremendous ravages and its baffling nature, cancer continues to attract the greatest attention. Entire hospitals are devoted to the study and treatment of this disease, while volumes are required to report pertinent observations and experiments. Ingenious forms of investigation have been described. Physicians are constantly on the alert to catch some gleam that will illumine our understanding of this destructive malady. It is true that advances have been made, such as the evolution of life-saving surgical procedures and the development of the *x*-ray for diagnosis and treatment, but the exact cause of cancer remains a mystery. Undoubtedly, some of the tremendous and thoughtful work of the past year will serve as foundation for the solution of this problem.

HEART DISEASE

Heart disease is the one which now claims the highest death rate, and consequently it is being studied from every angle. The remedy really calls for a discovery of ''the fountain of youth.'' As most deaths from heart disease are actually due to a wearing out of this organ, the task is one of either lessening the wear and tear or inventing a method for replacing or rejuvenating this vital mechanism. The first of these alternatives is frequently advised but seldom heeded; the second seems remote. Digitalis, which has the remarkable property of temporarily reviving the failing cardiac muscle, was discovered many years ago. This drug and others are known to influence the cardiac rate and rhythm and are preparations invaluable for the treatment of diseases of the heart. The greatest mechanical development in medicine of recent years is the electrocardiograph, a modification of the string galvanometer, which records electrical changes produced by the contraction of the heart muscle, describing a curve from which may be determined the rate, rhythm and muscular strength of the heart. This instrument is a most valuable aid in both the diagnosis and the follow-up of heart disease; in fact, most of the recent advances in this field are related to the electro-cardiograph and its use.

INFECTIOUS DISEASES

Pneumonia.—The infectious diseases still include some of the chief causes of death in spite of the strides that have been made in their prevention and cure during the past fifty years. The acute respiratory infections, including pneumonia, show a high mortality rate. Every year there are nearly 500,000 cases of pneumonia reported in the United States, with about 125,000 deaths. During recent years, the etiology of pneumonia has been more carefully worked out, and the pneumococcus, the organism which causes most pneumonia, has been found to be made up of a number of different biological strains called types. Each type produces a different immune reaction in the body, so that to counteract the infection, a serum must be used which is specific for the particular type of pneumococcus causing the disease. Neufeld and Händel[1] first demonstrated that the pneumococcus was composed of a number of distinct biological strains. Dochez and Gillespie[2] classified these strains as Type I, II, III, and Group IV. Cooper, Edwards and Rosenstein[3] subdivided the Group IV into ten additional types, and this year, Cooper doing the laboratory investigation, and Bullowa[4] carrying out the clinical studies, have shown that most cases of pneumococcus pneumonia are of one or more of 32 specific types. Cecil and Plummer[5,6] and other investigators in many parts of the world have previously demonstrated clinically the value of serum in the treatment of Type I and Type II pneumonia, which types include more than 50 per cent of the cases. This year Bullowa[7] has reported the value of Type VII serum. Pneumonia serum, as diphtheria antitoxin, must be given early in the disease to be successful. This necessitates a careful study of the sputum to determine the specific type causing the infection. The method in vogue until 1930 required from 12-24 hours to perform —which meant either the immediate use of a polyvalent serum, or a delay in administering the specific preparation. In 1930, Sabin[8] described a method of typing, applicable to most cases, which decreased the time requirement to 2-4 hours. In May of this year, Sabin[9] redescribed a method reported by Neufeld in 1902 which, with certain modifications, makes it possible to determine the type almost immediately.

Encephalitis.—The common cold, influenza, small-pox, poliomyelitis (infantile paralysis), encephalitis (sleeping sickness), psittacosis (parrots' disease), and other so-called filterable virus disease have received a great deal of attention this year. During the summer months, an epidemic of encephalitis broke out in St. Louis, and 656 cases had been reported up to Sept. 10, with a mortality rate of about 15 per cent. This disease[10] is a most insidious one and the health forces, including the U. S. Public Health Service, the St. Louis Board of Health and Medical Society, and the medical departments of the two medical schools located in St. Louis, quickly mobilized to study and combat this scourge. Epidemiological studies did not determine the exact method of transmission, but tended to rule out water and milk supplies as factors and pointed toward a possible insect carrier, quite likely the mosquito. Pathological studies confirmed the records in other epidemics. The finding of inclusion bodies in sections of kidney tissue, in addition to the successful transmission of the disease to animals, furnishes strong evidence in favor of the filterable virus as the causative agent.

Whooping-cough is now considered one of the more serious diseases of childhood. It is extremely debilitating and carries quite a high mortality. There is no effective prophylaxis, such as for diphtheria and small-pox, and no specific therapy. Because of many failures to produce a satisfactory therapeutic agent, it was suggested that whooping-cough was not caused by the Bordet-Gengon bacillus, but by a filterable virus. This led a number of investigators at Johns Hopkins University[11] to carry out extensive animal experiments, the results of which seem to prove the Bordet-Gengon bacillus responsible.

ENDOCRINE DISEASES

Discoveries. — The endocrine diseases present many problems differing from those of the infectious diseases. Here the investigator must delve further into the fundamentals of anatomy and physiology. Fortunately, they reveal no contagious or epidemiological aspect. Modern endocrinology, perhaps even younger than modern bacteriology, can boast, too, of its epochal discoveries, such as insulin, thyroxin, parathormone, adrenalin, pituitrin and cortin, which have brought great enlightenment concerning the function of specific glands. For example, with the discovery of cortin there was a simultaneous and subsequent increase in our understanding of Addison's disease. This was reported a year ago.

Pituitary Gland.—Investigation of the pituitary gland this year has revealed the significant fact that this gland secretes a half dozen or more different hormones, each of which has a distinct action on the body.

The sex glands are being given widespread consideration and certain recent findings are striking. Attention has been focused on two ovarian preparations—theelin and theelol. In the clinical study reported by Werner and Collier,[12] theelin was administered to five surgically castrated women over periods of from 89 to 93 days. This resulted in repeated uterine bleeding during the treatment. The cervix increased in vascularity; the endometrium showed hyperplasia, and the breasts became enlarged. Subjective improvement occurred in all patients, including definite alleviation of menopausal symptoms. This clinical evidence in favor of theelin supports the more extensive experimental evidence accumulated through recent years in favor of ovarian preparations. In this domain, clinical investigation has not kept pace with experimental research, so that now we are probably on the threshold of some important clinical contributions.

Vitamin Deficiency. — Concerning the vitamin deficiency diseases, in many ways closely allied to the endocrine diseases, there have been significant reports of clinical studies of the vitamins; a clearer discernment of the exact symptomatology of the deficiency diseases, and a more accurate knowledge of the use and limitations of the vitamin preparations in therapy.

DISEASES OF THE PERIPHERAL VASCULAR SYSTEM

During the last few years, a group of diseases known as the diseases of the peripheral vascular system has been very enthusiastically studied by a number of investigators. The impetus has come particularly through better means of visualization and photography of the capillaries. These developments and a description of the modern technic for capillary study have been reported by Duryee and Wright.[13] The appearance of the capillaries in a number of diseases such as high blood pressure, arthritis, congenital heart disease with clubbed fingers, and many others has been compared with the normal, but no differences have been noted. An accurate determination of skin, intravenous, intra-arterial and intramuscular temperatures has been made by Wright and Johnson.[14] Intravenous temperature was found to be lower than mouth, arterial temperature lower than mouth but higher than intravenous readings, while temperature in the muscles was even higher than mouth temperature. Such an accumulation of interesting and important facts regarding these structures gives a better understanding of various disease conditions and paves the way for greater discoveries.

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PHARMACOLOGY

By Harry Gold

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DINITROPHENOL

This substance came into prominence during the war because it is produced in the manufacture of explosives and dyes and has given rise to industrial poisoning. It has been the subject of interesting recent investigations. A detailed study by Tainter and Cutting (*J. Pharm. & Exp. Therap.* 48:410, August, 1933) confirmed previous reports showing that it increases tissue metabolism, giving rise to respiratory stimulation and pyrexia, doses of 10 mg. per kg. increasing metabolism about 50 per cent. They found that this action was directly on the tissues, independent of the nervous system, of contraction of skeletal muscles, of the adrenals or the thyroid. These effects come on in animals with doses that do not appear to be injurious, studies of the urine, icteric index, Van den Bergh test and autopsies giving no evidence of damage after repeated administration for from two to three months to dogs.

Tainter, Stockton and Cutting (*J. A. M. A.* 101:1472, 1933) treated 113 patients with obesity for an average of 40 days with daily doses of the sodium salt of dinitrophenol in doses of from 100 to 500 mg. daily, resulting in an average loss of weight of 13 pounds in 51 days. It failed in only nine cases. The chief side effects were skin eruptions, intense itching and increased perspiration. No serious toxic effects were produced. It promises to be an important substitute for thyroid in various disturbances of metabolism because it apparently increases metabolism without the nervous stimulation produced by thyroxine.

SPINAL ANESTHETICS

In the use of anesthetics by spinal injection efforts have been made to prevent the drug from moving upward toward the medulla by changing the position of the body as well as controlling the density of the anesthetic solution because it was feared that if the drug reached the medulla it might cause direct paralysis of the respiratory center. A few years ago a study was published in which it was stated that procaine does not paralyze the respiratory center when it is placed directly on it. This problem is a matter of very great importance because sudden deaths are known to occur during spinal anethesia which are attributed to the direct paralysis of the respiratory center. Cotui (*J. Pharm. & Exper. Therap.* 48:223, June 1933) injected procaine hydrochloride into the cisterna magna of dogs and found that the M. L. D. was 1.3 to 1.5 mg. per centimeter length of spinal cord, corresponding to about 5 to 10 mg. per kg. of body weight. This is considerably smaller than the fatal dose by intravenous injection, showing therefore that procaine may paralyze respiration by direct action on the medulla after intraspinal injection. Cotui (*ibid.*, 229) also found that fairly large doses of morphine, morphine-scopolamine or avertin-morphine were without appreciable influence on the fatal dose of procaine, but that the administration of amytal intravenously prior to the cisternal injection of procaine materially increased the sensitiveness of the respiratory center so that smaller doses of procaine caused respiratory failure. This result with amytal is interesting and unexpected in view of the recent studies which have shown that the barbiturates protect an animal against more than a fatal dose of the local anesthetics when injected subcutaneously. If the results of Cotui are confirmed, they will indicate that the fatal action of cocaine injected subcutaneously as well as the protective action of barbiturates involve sites of action other than the respiratory center.

GENERAL ANESTHETICS

Divinyl oxide ($CH_3CH_2OCH_2CH_3$), a new ether, has been the subject of recent investigation because of the possibility that it might combine desirable properties of ether and ethylene. Leake, Knoefel and Guedel (*J. Pharm. & Exper. Therap.* 47:5, Jan., 1933) in animal experiments found that it was a very effective anesthetic, more volatile than ether, less irritant, and does not injure the vital organs. A preliminary trial in human subjects by Gelfan and Bell (*ibid.*, p. 1) indicates that this may be a useful addition to general anesthetic agents. It appears to be more pleasant than ether; the stage of induction as well as recovery are much more rapid, and marked relaxation of the abdominal muscles can be obtained without pronounced respiratory or circulatory changes during the course of the anesthesia.

It is often necessary to employ anesthetics in the pharmacological study of drugs, and insufficient attention has been paid to the possibility that these might modify the actions of the drugs under investigation. Considerable interest is now being manifested in this matter. A study by Major, Weber and Nanninga (*J. Pharm. & Exper. Therap.* 47:107, Jan. 1933) shows that a barbiturate greatly increases the depressor action of brain extracts. A study by Weinberg (*ibid.*, page 79) shows that the pressor action of yohimbine or quebrachine becomes a depressor action in the animal under anestheia with a barbiturate. His results indicate further that the effect of drugs which raise the blood pressure by a peripheral action remains uninfluenced by anesthetics whereas centrally acting pressor drugs may show a reversal and produce a lowering of the blood pressure under the same conditions.

NICOTINE

The cause of death in nicotine poisoning was investigated by Franke and Thomas (*J. Pharm. & Exper. Therap.* 48:199, June, 1933). They obtained further evidence in support of previous results by the same authors (1928) indicating that the primary cause of death is peripheral, curare-like paralysis of the muscles of respiration rather than as is generally taught, a direct paralysis of the respiratory center. They devised a very ingenious application of the principle of the Claude Bernard experiment to detect activity of the respiratory center after the respiration has failed. They excised a portion of one diaphragm and left it attached to its phrenic nerve and used the recorded contractions of this muscle as an index of activity of the respiratory center. After large doses of nicotine they found in this way that the respiratory center continued to discharge rhythmically after all signs of activity in the intact diaphragm (which was reached by the intravenously injected nicotine) disappeared and when stimulation of the phrenic nerve to it, as well as stimulation of the sciatic nerve, showed that a marked curare-like action had taken place. Their technique affords a new method for the investigation of other drugs believed to act on the respiratory center.

Nicotine is widely used as an insecticide and from time to time cases of poisoning are reported. Strong solutions of nicotine (40 per cent) are handled rather carelessly in the form of sprays by gardeners without realizing the toxicity of the drug and the rapidity of its absorption. Faulkner (*J. A. M. A.* 100:1664, May 27, 1933) reported severe poisoning in a man who sat down on a chair on the seat of which some Nico-Fume-Liquid had been spilled. He also performed experiments on rabbits which showed that a small quantity of nicotine base rubbed into the normal skin may cause death from nicotine poisoning in a few minutes.

GOITROGENIC AND ANTIGOITROGENIC SUBSTANCES

A number of interesting observations have been made which throw new light on the mechanism and formation of goiter. Chesney, Clawson and Webster (*Johns Hopkins Bull.* 43:261, 1928) showed that feeding of cabbage causes goiter in rabbits. Marine and his co-workers (*Proc. Soc. Exp. Biol. & Med.* 29:772, 1931) believe this goitrogenic activity to be due to a cyanide in cabbage. They found that the injection of cyanides such as acetonitrile, sodium cyanide or methyl cyanide causes pronounced thyroid hyperplasia in young rabbits, which they explain by the fact that cyanides depress oxygen consumption which in turn stimulates thyroid growth. Iodine administration prevents hyperplasia resulting from cyanides in the same way as it does in other states in which there is a relative iodine deficiency. They suggest that differences in the absorption and detoxification of cyanides may help to explain some of the puzzling phenomena of human goiter, for example, why high iodine intake sometimes fails to prevent thyroid hyperplasia.

Marine, Baumann and Webster (*Proc. Soc. Exper. Biol. & Med.* 27:1029, 1930) showed that various plant juices including cabbage also contain an antigoitrogenic substance which may cause thyroid involution. This activity was found to correspond roughly to the reducing power (iodine absorbing) of the extract. This reducing substance has been found in various glands, the suprarenal cortex, gonads, corpus luteum. Its activity is not due to iodine and it may be related to hexuronic acid. They suggest that this reducing substance of plant juices promotes tissue oxidation and thereby provides a means for sparing thyroid. Interesting data bearing on this subject from another angle are supplied by Spence (*J. Pharm. & Exper. Therap.* 48:327, July, 1933) who found first of all that chickens were very resistant to organic cyanides, because they were unable to split off the CN group readily from organic cyanides, and secondly, they are extremely resistant to thyroid hyperplasia by methyl cyanide partly for the foregoing reason and partly because chickens can synthesize hexuronic acid (Vitamin C) which in previous experiments has been shown to be antigoitrogenic.

INTRACEREBRAL INJECTION OF DRUGS

Cushing and his co-workers found that the injection of pituitrin into the cerebral ventricles in human subjects produced flushing and sweating, reduction in temperature and metabolism, these effects being abolished by atropine as well as by avertin anesthesia the seat of action of which is presumed to be the diencephalic centers. They found that these effects of pituitrin were similar to those of pilocarpine when similarly injected. On the basis of these studies they postulated a "para-sympathetic center" in the walls of the third ventricle the cells of which control vegetative functions of the body. These effects of pituitrin are unlike those that result from the intravenous injection of the drug, namely, vasoconstriction and pallor. Prof. Abel suggested it might be the impurities in pituitrin rather than the hormone itself which caused a vasodilatation and masked the effect of the vasoconstricting hormone of the gland when an impure extract is placed in the ventricle. The subject was reinvestigated in the monkey (the dog differs in its response from man) by Light and Bysshe (*J. Pharm. & Exper. Therap.* 47:17, Jan., 1933) who found that the flushing and sweating effect of pituitrin injected into the ventricle of the brain is due to the hormone and not to impurities. While such substances as acetyl choline and histamine caused vasodilatation when injected intravenously, they were without this effect when injected into the lateral ventricles, and none of the impurities was found to cause the flushing and sweating. They also found that the pilocarpine effect which resembled pituitrin in the human subjects did not behave similarly in the monkey. In the latter it caused pallor, salivation and occasionally vomiting, rather than flushing and sweating.

CARBON MONOXIDE AND CYANIDE POISONING

Since Meyerhof's demonstration in 1912 that methylene increased the oxygen consumption of yeast by as much as 300 per cent, various studies have shown that methylene blue accelerates or catalyzes biological oxidations. In 1930 Warburg showed that the oxygen consumption of red blood cells is not influenced by carbon monoxide if methylene blue is added. These studies have suggested the use of methylene blue in poisoning by the respiratory poisons, cyanide and carbon monoxide. Eddy (1931) found that methylene blue prevents the increase in blood pressure, respiration and salivary secretion caused by sodium cyanide in dogs, and that dogs treated with the dye survived otherwise fatal doses of sodium cyanide. Brooks (*Am. J. Physiol.* 102:145, Oct., 1932) stated that rats in which coma was induced by inhalation of HCN or CO recovered more rapidly after an intraperitoneal injection of methylene blue than similarly treated controls. Reports have recently appeared in which the authors hold that human poisoning by cyanides and carbon monoxide may be favorably influenced by the administration of methylene blue (Geiger, *J. A. M. A.* 100:1944, Dec. 3, 1932; Christopherson, *J. A. M. A.* 100:2008, June 24, 1933). The use of methylene blue as an antidote for carbon monoxide poisoning has been severely criticised by Haggard and Greenberg (*J. A. M. A.* 100:2001, June 24, 1933). They found that methylene blue did not accelerate recovery of rats poisoned with carbon monoxide and suggested that the mechanical stimulation of an intraperitoneal injection was responsible for the apparently more rapid recovery in the treated animals in the experiments of Brooks. In their experiments with dogs they found that methylene blue tended to be injurious rather than helpful in gas poisoning. Various theories have been advanced as to the mode of action of methylene blue on biological oxidations. Cyanides poison the respiratory catalyst so that tissues cannot utilize oxygen although an adequate supply of oxygen is available. Carbon monoxide combines with hemoglobin, which is the oxygen carrier so that less oxygen becomes available to the tissues. In either case asphyxia results. Carbon monoxide has a much greater affinity for hemoglobin than for the respiratory ferment, hence when it enters the blood stream even in fatal doses it does not appreciably inhibit the latter. The formation of methemoglobin by methylene blue in CO poisoning may therefore further reduce the available oxygen supply. One explanation of the action of methylene blue in cyanide poisoning is that it may act as a respiratory ferment. Wendel (*J. A. M. A.* 100:1054, April, 1933) does not believe that methylene blue acts as a respiratory catalyst in its antidotal effect but that the latter is due to the fact observed by others as well, namely, that it catalytically converts hemoglobin, into methemoglobin, the latter removing cyanide by the formation of the very stable compound syanmethemoglobin. He found that the administration of methemoglobin to dogs poisoned with cyanide afforded protection against otherwise fatal doses. The nitrites which form methemoglobin have therefore been utilized as antidotes to cyanide and the study by Chen, Rose and Clowes (*J. A. M. A.* 100:1920, June, 1933) shows that in dogs the administration of amyl nitrite by inhalation protected dogs against as many as four times the ordinary fatal dose of sodium cyanide whereas methylene blue was effective against only one-half as much cyanide. Many other antidotes to cyanides have been suggested from time to time. There are several studies which indicate that some sulphur compounds detoxify cyanides by the fact that they liberate sulphur which combines to form the relatively innocuous sulphocyanates in which form they are excreted. Reducing sugars like glucose detoxify cyanides in vitro. A recent experimental study made on rabbits by Turner and Hulpieu (*J. Pharm. & Exper. Therap.* 48:445, August, 1933) confirms the fact that sodium thiosulphate is a fairly active antidote to cyanides, and that while glucose is without such an action, dihydroxyacetone has a pronounced antagonistic effect because it combines with cyanide. Since the latter is rapidly oxidized and the cyanide liberated, its effect is only transitory.

SURGERY

By Frank L. Meleney

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ANESTHESIA

Avertin is gaining in popularity as a basal anesthetic and its use is spreading throughout the country. In the larger clinics the number of cases in which it has been used have reached large figures—many thousands of cases. It is now generally understood that this anesthetic may be safely used if the simple preliminary precautions have been taken. It should be used, however, solely as a basal anesthetic and be supplemented with small doses of gas and oxygen or local anesthesia. Avertin has been given repeatedly daily over a period of weeks to animals and man without untoward effect. The only contra-indications are severe liver diseases and ulcerations of the rectum or sigmoid. A number of French authors have found that patients varied in their susceptibility to avertin, and that those particularly susceptible would get the analgesic effect with small doses. A convenient and efficient test for susceptibility is a slowing of the pulse on compression of the eyeball. The reverse indicates tolerance and, with these cases, larger doses must be used. During the past year the virtues of avertin anesthesia in thyroid and in brain operations have been particularly praised.

Pantocaine.—The field of spinal anesthesia has been widened during the past year by the extended use of pantocaine instead of novacaine. Pantocaine gives anesthesia over a period of several hours and in that respect is superior to novacaine, spinocaine and stovaine which may be used for operations lasting 40-50 minutes, but which cannot be depended upon to carry the patient through an operation lasting over an hour. The fall in blood pressure formerly so common following spinal anesthesia has been largely prevented by the preliminary administration of 100-150 milligrams of ephedrin which, however, must be given intramuscularly fully five minutes before the injection of the drug. Still, patients with an abnormally high or low blood pressure may suffer from fluctuations which may occur during the period of anesthesia, fluctuations which may have a disastrous effect on damaged blood vessels resulting in cerebral accidents. The danger of injury to the cord is always potential but such dangers are minimal in the hands of good technicians. The use of small bore needles minimize injury to the dura and subsequent leakage of spinal fluid. Fully recognizing the advantages of spinal anesthesia in certain groups of cases, particularly in intestinal obstruction, we must confess that in the general run of cases the risk is greater than with avertin and there should be a definite indication for the substitution of spinal anesthesia for avertin even with the most recent improvements in technique. The importance of careful observation by an experienced anesthetist throughout the operation is now well recognized by everyone, and even the most enthusiastic exponents of spinal anesthesia sound a note of warning when they advocate its use.

Gum Acacia Preparation.—The treatment of traumatic and postoperative shock has been improved during the past year by the standardization of a method of preparing gum acacia which gives a safe and effective solution for maintaining the blood pressure over a period sufficiently prolonged for the heart and vasomotor system to regain control of the situation. Gum acacia was frequently used in the treatment of shock during the war but it was seldom effective, and reliance had to be placed upon transfusion. The recent improvement in technique of preparation assures a better mixture with the blood with a consequent longer retention of the solution in the vascular tree. This should minimize the number of cases requiring blood transfusions in the treatment of shock and limit them to those in which there has been a considerable loss of blood.

SURGERY OF THE DUCTLESS GLANDS

Parathyroids. — Increasing numbers of cases of parathyroid tumor associated with polycystic disease of bones have been reported in the literature. It is coming to be a well recognized disease entity. The bony changes so characteristic in the *x*-ray films are associated with a high blood calcium and a high blood phosphatase. Calcium is rapidly excreted from the body in the urine. Deformities may become profound and pain may be severe. When these clinical evidences of parathyroid disease are present a search should be made for a swelling in the neck. If this is absent the tumor may frequently be found in the mediastinum where it could not be palpated. When these tumors have been found, their removal has almost always resulted in a relief of symptoms, a return of the blood calcium and phosphatase to normal and a restoration of the normal configuration of the bones by recalcification.

Total Thyroidactomy has been advised and practiced during the past year in cases of chronic cardiac decompensation even without any evidence of raised metabolism or other symptoms of a hyperactive thyroid. This precedure is based upon the theory that by removing the thyroid a hypothyroid state can be produced which will diminish the cellular activities throughout the body and thus make less demand upon a heart which is only able to perform the work required of it when the patient is at rest. The operation has been performed by one group of surgeons in a small series of cases but the results have been so favorable that others have followed their example and have undertaken the operation in carefully selected cases in a very conservative way. The rationale of the procedure and the results already obtained seem to justify further efforts in this direction. The limitations of this operation will doubtless be evident when a larger number of cases have been treated. It is too much to expect that chronic cardiacs which are rapidly going down hill will be saved by this procedure but with heart disease as common as it is, hope is offered to a large number of individuals who are now bed-ridden because of incompetent hearts which maintain them perfectly well in a state of rest but which have too narrow a margin of safety to permit any extra effort. Following total thyroidectomy these patients may improve to the extent of getting about again, enjoying a wider range of activity and being less of a burden upon their families.

Pericardial Decortication. — Another form of heart disease has recently been given wider surgical consideration than in former years. This disease is characterized by symptoms of embarrassed heart action due to an adherent pericardium following some form of pericarditis, rheumatic, tubercular or suppurative. Many of these have deposits of calcium in the pericardium, and both diastole and systole are interfered with. This produces a gradually progressive disability which limits the patient's activity, gradually confines him to bed and finally makes any effort, even breathing, exhausting. A decompression operation by removal of the overlying ribs gives some relief but the results are more gratifying if decortication of the pericardium is done, permitting the heart to contract and relax in a manner approaching normal. The anterior portion of the pericardium may be removed with greater ease than the posterior but this much relieves both the right and left sides of the heart to such an extent that its function may be greatly improved in many cases, and bedridden patients may be restored to a state of comparative comfort and activity.

MINIMIZING RISKS

Operating Dictum.—Years ago a famous surgeon said: "With acute infections of the gall bladder you may safely wait. With acute infections of the appendix you should never wait." That dictum has not been followed by the medical profession generally but the trend in the last few years has been more and more in that direction, and the sad results of haste on the one hand or tardiness on the other have borne out the wisdom of that dictum.

Acute Cholecystitis.—A small proportion of cases of acute cholecystitis which do not show some evidence of improvement over a period of 48 hours, particularly in the presence of evidences of suppuration, require prompt surgical interference but the great majority of cases will subside over a period of days and permit the fortification of the liver and heart preparatory to operation. It has been shown that there is damage to the liver in a great many cases of acute infections of the gall bladder. The degree of damage may be determined roughly by certain tests of liver function. A dye used for cholecystography may also serve to indicate liver function by an estimation of its retention in the blood serum after injection, and the utilization of galactose by the liver may give an estimate of the function of that organ. The risk of operation in the presence of a damaged liver is great but there seems to be very good evidence that the administration of large quantities of glucose by vein or subcutaneously and high percentages of carbohydrate in the diet if food is tolerated, will restore a damaged liver in a relatively short time, and the delay of a week or ten days will, therefore, greatly minimize the risk of operation.

Appendicitis.—On the other hand the high mortality in appendicitis is directly due to delay in operation. The fault is due in many cases to the patient who takes a cathartic for a stomach ache and fails to call a doctor until the appendix has perforated. But in many cases the fault rests with the doctor who is willing to run the risk of a perforation because a fair proportion of cases subside spontaneously, or who fails to make the diagnosis when first called to see the patient and does not see him again for 24, or 48 hours, after the damage has been done. It cannot be too strongly emphasized that the mortality in cases of acute appendicitis operated upon within 24 hours of the onset of the disease is almost nil, but the mortality rises in the subsequent two days with alarming rapidity. This corresponds to the time of perforation which may take place suddenly without any premonitory signs. The only way in which the present high mortality of appendicitis can be lowered and the risk of serious complications leading to prolonged hospitalization or disability be minimized, is for patients and doctors alike to realize the danger of delaying operation more than 24 hours when acute appendicitis is diagnosed or even suspected.

Acute intestinal obstruction demands the same degree of haste in operative interference. Here again the mortality is greatly increased by any delay over twelve of 24 hours after the onset of symptoms. Early diagnosis may be made in most cases by the clinical symptoms and in doubtful cases diagnosis may be facilitated by the use of the *x*-rays to determine the presence of distended loops of small intestine. These may be found long before the patient has developed the symptoms of repeated vomiting which leads so rapidly to the dehydration and the disturbance of the acid-base equilibrium which are the main factors in a fatal outcome. In these cases the risk of operation may be greatly minimized by early diagnosis, by a preoperative or postoperative restoration of the normal proportion of fluid and electrolytes in the circulating blood and by the prompt relief of the obstruction. A large proportion of cases of intestinal obstruction are due to peritoneal adhesions or bands which have developed following previous operations. In order to prevent or minimize the reformation of adhesions the use of a vegetable proteolytic ferment has recently been advocated. This ferment ''papain'' in dilute solution or suspension has been introduced into the peritoneal cavity just before the closure of the last peritoneal stitch. The papain is supposed to dissolve the fibrin which is formed when the blood or peritoneal fluid clots. Thus the fibrin which is the precursor of the fibrous adhesions is reduced to a minimum.

DENTISTRY

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PRESENT STATUS OF DENTAL EDUCATION

Carnegie Foundation Report. — In 1926 the Carnegie Foundation for the Advancement of Teaching published a report on ''Dental Education in the

United States and Canada.'' This report was acclaimed in some quarters and condemned in others, but a review of the recommendations made and a comparison of dental curricula at that time and today seem to indicate that the report may well be considered a milestone in dental progress. Briefly, the report recommended that the requirement for admission to a dental college be set at a minimum of two years of pre-professional training in an academic college; a reorganization of the curricula in dentistry to three academic years; an additional optional full year graduate curriculum leading to an M. A. or M. S. degree; development of combined dental and medical curricula; promotion of research; discontinuance of all independent schools unless they could be suitably endowed and suitably affiliated with universities. These objectives are for the greater part realized at present. While there has been a lack of unanimity in dental educational thought, on the part of both the educators and the profession, the net result has been very much to the betterment of dentistry.

Dental School Programs.—Admittedly the practice of dentistry constitutes a health service, and every individual performing such service must have a certain amount of education in the biologic sciences if he is to function intelligently and fully discharge his obligation. There is the additional and entirely tenable premise that the dentist has a considerable portion of his time occupied in restorative work. The nature of this work is one requiring considerable skill of a mechanical sort. Difference of opinion among educators as to the proportion of time occupied by the student in training that should be assigned to these two main divisions and what the integration should be is responsible for the several programs now offered by the dental schools of this country for meeting the requirements of the D.D.S. degree. At present there is considerable variance both in the requirements for admission and in the requirements for graduation in the several schools. The following plans are now in effect in different institutions: one year pre-professional with four years of professional training; two years pre-professional with three years professional; two years pre-professional with four years professional; three years pre-professional with four years professional; two years pre-professional, three professional with a graduate year leading to an advanced degree is also offered by some institutions.

American Association Survey.—This variance in program presents a problem when students may find it expedient to transfer from one school to another. The sequence of subjects not being the same, program conflicts arise which may make it impossible to complete the course in the regularly allotted time. At present a committee of the American Association of Dental Schools is conducting a survey in an attempt to secure uniformity of program and content. While any stereotyped duplication would be undesirable, a conformity in allottment and emphasis would be advantageous.

REQUIREMENTS TO PRACTICE

Differences in State Licensing.—While this ferment has advanced the cause of dental education, another factor in the equation as far as the dental student and dental practitioner are concerned is the difference in requirements of the various state boards of dental examiners as to qualifications for licensure. Graduates from two-four or three-four schools are eligible for examination in all states. Graduates of schools with a lesser requirement are eligible for examination in all states but New York. License by reciprocity is possible between some states, but in general a practitioner of dentistry may not transfer his residence for practice from one state to another without taking some form of licensing examination.

National Board of Dental Examiners.—Recently there has come into existence a National Board of Dental Examiners. It is the hope and purpose of this Board that the license it issues will be accepted eventually as evidence of proper preparation for practice by all of the states in the union. At the present time, only four states have signified their willingness to coöperate by recognizing such licensure. Inasmuch as this national board is the outcome of popular sentiment among members of the dental profession for such control, it may ultimately become universally effective, if all states and all schools adopt the same fundamental educational standards.

RELATION OF DENTISTRY AND MEDICINE

Need For Coordination.—With the advance that has been made in the standard of dental schools and dental teaching, there has been a growing realization on the part of dental educators and many members of the dental profession of the need of a closer coordination with medicine. While the development of the technical side of dentistry to a point of recognition of American dentistry as the highest type of mechanical excellence would possibly never have been arrived at had it not developed independently of medicine, it did not permit of homogeneous growth. The biologic side was missing from the equation. It is true that many of the accepted procedures arrived at by the trial and error method have since been found to be biologically sound, but they were arrived at by discarding procedure that resulted in failure rather than by logical deduction. Cognizance of this desirability for the establishment of common ground was lacking in medicine except in rare instances. Today there seems to be a steadily growing realization between the two professions of many points of contact where both may be coöperatively helpful. To further such interchange, a mutual exchange in education is essential. Each profession would gain in efficiency by a better knowledge of the other. What this integration may be and what form it may take is entirely problematical. The change will have to be one of evolution.

DENTAL RESEARCH

Increase in Cooperative Activities.—The chief factor in establishing this future relationship between the two professions will be research in dental health problems. The changed concept of dental practice has been the result of research activity on the part of individuals. One of the chief deficiencies in dental schools at the time of the Carnegie Survey was the lack of activity in research. Strangely enough, of the large sums of money given to medicine for research in health problems, little if any was expended in the investigation of the most generally prevalent disease, dental caries. Some research has been carried on for years by individuals in the dental profession, but organized research programs in dentistry, under university auspices, have been conspicuous by their absence. It is gratifying to note that as a result of the integration of dental schools with universities and the employment of a larger number of full time teachers, activity in research has been markedly increased. Studies are being conducted by individuals and groups in several institutions. A few good-sized grants have been made by foundations and joint investigations are being carried forward by members of dental and medical faculties working in coöperation. The result of this research association is gradually widening the common ground of the two professions, and will tend to draw them closer together as time goes on.

The Caries Problem. — Naturally the problem of caries is the predominant subject of interest to investigators. At present there seems to be two definite schools of thought on the subject. The one holds that environmental factors are the cause; the other that systematic conditions govern. In the middle ground is another group who feel that the influence of systemic factors on local salivary conditions may be the protective mechanism. The problem is a complex one with many ramifications requiring extensive investigation, but in its solution rests the fate of preventive dentistry in attempting to render future generations immune to the ravages of dental disease. Diseases of the soft tissue rank next to caries in causing loss of teeth, and they are being studied both locally and in relation to systematic disease. Several advances have been made in restorative dentistry as the result of investigation in the physical properties of dental materials. Work in this field is in progress in a few dental schools, and at the Bureau of Standards in Washington. The American Dental Association has established two research fellowships at the Bureau, and active investigation has been in progress for some time.

Economic Handicaps.—The present economic situation, however, is making research increasingly difficult. The foundations have had to curtail their activities and are finding it difficult enough to finance established projects without making any new commitments. University budgets have been reduced to balance with the curtailed incomes of their corporations. Legislatures have reduced appropriations for state supported schools to meet tax payers' demands for reductions. The whole situation is discouraging to schools that have attempted to fulfill their full function and contribute to the advancement of science. There are a number of well established projects that are worthy of financial support if individual contributors could be found, and individual contributors will needed to make possible the va amount of work that is becoming a parent with the widened scope of t new conception of dentistry.

SOCIALIZED DENTAL SERVICE

The report of the Committee on th Costs of Medical Care has emphasize a condition that, perhaps, is leading some form of state health service. Th high cost of adequate service to th individual and the popular realizatio of the need for such service is boun to be solved on some basis of coöper tive bargaining. At present some i dustrial concerns provide a parti service for employees. There are few associations of trade unio where dental care is provided on cost of service plan. There is at lea one organization that provides med cal service on an insurance basis. Th dental profession has been studyin these various organizations as well the systems of some of the Europea countries. It is to be hoped that the may be able to bring forth a plan f such service that will be just an equitable to both the public and th profession.

PUBLIC HEALTH AND HYGIENE

By Ira V. Hiscock

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HEALTH AND DEPRESSION

Undernourished Children.—For over two years the Children's Bureau, U. S. Department of Labor, has been accumulating from many sources evidence of various kinds concerning the effects of the depression on the health and nutrition of children. The Bureau points out that the figures from one community are not necessarily applicable to another, and because the effects of privation are demonstrable in one region, it does not necessarily mean that they exist in another. The sum of evidence, however, indicates that the nutritional condition of children in many communities is showing increasingly serious effects, especially in 1932, of th long periods of unemployment an want. The Bureau emphasizes tha the time has come to stimulate communities to become conscious of th fact that there may be many seriously under-nourished children i their midst and that probably the are also many in a borderline cond tion of malnutrition. "These childre must be found and fed, regardless o just what proportion of the chil population they represent. The Chi Health Recovery Program that is being formulated at the present tim has this for its objective." (*Chil Welfare News Summary,* Children Bureau, U. S. Department of Labo

Washington, D. C., July 12, 1933. See also "Is Malnutrition Increasing," Esther Jacobs, *Amer. Jour. of Public Health,* Vol. XXIII, No. 8, August, 1933).

Lack of Funds.—The effects of the depression on public health have been discussed from various aspects in different publications. Local and state boards of health have experienced budget cuts, in some cases to an alarming extent. Curtailment of funds for the U. S. Public Health Service is also noted with concern, as this step will not only affect the work of the national service but will also cut off aid for county health units in 28 states. (Editorial, *Amer. Jour. of Public Health,* Vol. XXIII, No. 9, Sept. 1933).

Incidence of Disabling Illness.—A preliminary report on illness in families of wage earners in Birmingham, Detroit and Pittsburgh shows a higher incidence of disabling illness among individuals in the lower-income classes in 1932 than among individuals with higher incomes. The highest illness rate is reported by a group which was in reasonably comfortable circumstances in 1929 but which dropped to comparative poverty by 1932. Their rate is 60 per cent higher than that of their more fortunate neighbors who were equal in economic status in 1929 but suffered no drop in income by 1932. The rate of disabling illness reported among individuals from families of the unemployed was 39 per cent higher than that of the group having full-time wage earners and 25 per cent higher than that of the group containing part-time but no full-time workers. However, the authors emphasize that conclusions and interpretations should await more complete analysis of the entire volume of data collected. Records of illness in 1933 and economic history from 1929 to 1932 have been collected from more than 12,000 families in 8 large cities, a group of coal-mining communities, and a group of cotton-mill villages. (Sickness and the Economic Depression, G. St. J. Perrott, Selwyn D. Collins, and Edgar Sydenstricker, *Public Health Reports,* Vol. 48, No. 41, October 13, 1933.)

FOOD VALUE OF MILK

The U. S. Government Bureaus took the initiative early in the depression period in pointing to the necessity of spending the "food dollar" properly if it were to protect the health of citizens. An adequate supply of safe milk is considered essential in planning the food needs of a family. A bulletin prepared jointly by the U. S. Children's Bureau and the U. S. Bureau of Home Economics advises that if one has very little money for food, each dollar should be divided in a manner to give one fourth or more for milk or its equivalent. According to this bulletin, each child and each pregnant or nursing mother should have 1½ pints to 1 quart of milk daily. (Family Food Budgets for the Use of Relief Agencies, U. S. Children's Bureau and U. S. Bureau of Home Economics, 1933).

Progressive, community leaders heeding the warning of nutritionists that underfeeding is a health hazard, have taken the position that milk cannot be considered a luxury when it yields a greater return in food essentials for money expended than any other food. During the past year fresh evidence, confirming earlier studies, shows that a quart of milk is in general a desirable quantity to be consumed daily. Children store calcium more satisfactorily when they are taking about one gram daily (approximately the amount supplied by one quart of milk) than when taking smaller quantities. This fact is particularly significant in light of other recent research which has brought about a new appreciation of the importance of calcium in good nutrition. A child may have a calcium-poor body without giving outward evidence of his condition; he may also be storing calcium, although in inadequate amounts. That many individuals live on the border line between nutritional success and failure and that their state of nutrition may be improved markedly by addition of milk to the diet, has been proved anew. (Jeans and Stearns, Retention of Calcium with a Pint and with a Quart of Milk, *Amer. Jour. Dis. of Children,* 44:645, Sept., 1932; Lininger, F. F., Relation of Use of Milk to Physical and Scholastic Progress of Undernourished School Children, *Amer. Jour. P. H.*, 23:555, June, 1933.)

TREATMENT OF CYANIDE AND CARBON MONOXIDE POISONING

In 1910 Warburg, the German physiologist, published data on the effects of methylene blue in the biologic oxidation-reduction of cyanide. This knowledge was, however, not put to any practical use until Brooks, in 1932, suggested the practical use of methylene blue as an antidote to cynaide and carbon monoxide. Geiger, in September 1932, demonstrated the practical efficacy of methylene blue in the treatment of cyanide poisoning in man when 50 c. c. of a 1% aqueous solution was intravenously injected with successful results. A short time later, in January 1933, Geiger successfully treated cases of carbon monoxide with this same dyestuff. Since that time many cases have been reported in the literature although there still remains some doubt as to the scientific reasons why methylene blue should be efficacious in the treatment of carbon monoxide.

At the annual meeting of the American Public Health Association held in Indianapolis, Ind., in October 1933, Dr. K. K. Chen and his colleagues of the Research Laboratories of the Eli Lilly Company, presented a report on the treatment of cyanide poisoning with amyl nitrite and sodium thiosulphate. This research demonstrates that amyl nitrite is twice as efficacious as is methylene blue and amyl nitrite along with sodium thiosulphate is five to six times as efficacious as is methylene blue. These new advances in this field will have far reaching effects in reducing the death rate from such poisoning. (Cyanide Poisoning, J. A. M. A., Vol. 99, No. 23, pp. 1944, Dec. 3, 1932; Methylene Blue Solutions in the Treatment of CO Poisoning, *J. A. M. A.*, 100, No. 14, p. 1103, Apr. 18, 1933.)

RURAL HEALTH SERVICE

Studies.—That the rural health service of the country is undergoing rapid evolution, reflected in a wide variety of organizational forms, is revealed in *A Study of Rural Public Health Service* edited by Allen W. Freeman, M.D., for the Committee on Administrative Practice of the American Public Health Association. The study was made because of the need for accurate information about public health work in rural communities. This comprehensive report summarizes and discusses in an enlightening manner the findings of detailed studies of 46 selected county or district health departments in the United States and Canada and a less intimate but more extensive inquiry concerning work in 337 full-time county units in 28 states. It affords a descriptive cross-section of the present status of rural health work. The material also forms a basis for the tentative development of standards in rural health activities such as those embodied in the revised *Appraisal Form for Rural Health Work,* and offers a historical base-line from which the progress of rural public health work can be measured.

State Aid in Administration.—The state department of health plays an important role in rural health administration. The motivation for the organization of county health departments according to the report, comes usually from the state department; the state makes important contributions to the budgets of most county health departments; it frequently appoints the health officer or approves his appointment, and furnishes consulting and supervisory service. Exclusive of the separately organized cities, the 27 organized counties studied expended in 1927 an average of 47.5 cents per capita per annum, while 19 unorganized counties expended an average of 26.9 cents per capita. This expenditure was only 1.5 per cent of the total cost of county government in the organized counties and 0.9 per cent in the unorganized counties. Evidence is submitted to indicate that the states must continue to bear a large part of the responsibility for the development and support of the rural health service. It is stated that the solution of the problems of the rural health administration in the United States seems to depend upon the extension of the system of county health departments. Such departments must be staffed and financed more adequately than at present, and the position of county health officer must be made to offer a satisfactory career to young and well-trained physicians who wish to make health administration a life work. (*A Study of Rural Public Health Service,* edited by Allen W. Freeman, The Commonwealth Fund, New York, 236 pp., 1933.)

VITAL STATISTICS

By T. F. Murphy

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SCOPE OF STATISTICS

The Federal Government has reached the goal for which it has been striving for over 30 years, namely, the inclusion of every State in the United States registration area. This was accomplished in 1933 with the admission of the State of Texas to both the birth and the death registration area, so that now the entire population of continental United States is included. Three of our insular possessions are also in the area for deaths—the Virgin Islands, Hawaii and Puerto Rico—and two in the area for births—the Virgin Islands and Hawaii. For all the States and the insular possessions included, the Division of Vital Statistics of the Bureau of the Census publishes annually vital statistics.

BIRTH RATES

The birth rate for 1932 is the lowest ever recorded since the establishment of the birth registration area in 1915. The figures for 1932 do not include the number of births in Utah, due to the failure of that State to furnish its transcripts. However, it is not believed that, if these were included, the birth rate of 17.4 for the registration area would be changed. The infant mortality rate for the same States was 57.7, and the stillbirth rate (per 100 live births) was 3.8.

DEATH RATES

The death rates which continued to increase may be assigned to diseases of the older age groups, or the degenerative type. In this group may be mentioned, as outstanding, diseases of the heart, which leads all other causes of death with a rate of 209.3 in 1932 as compared with 132.1 in 1900, cancer and other malignant tumors, with a death rate of 102.2 as compared with 63.0, nephritis, with approximately the same rate for the two periods, while cerebral hemorrhage and softening showed an increase from 71.5 to 79.5, and the rate for diabetes increased from 9.7 in 1900 to 22.0 in 1932. Especially disturbing is the large increase in suicides and homicides, the former from 11.5 to 17.5, and the latter from 2.1 to 9.2. Although the mortality rate from influenza and pneumonia combined has greatly decreased, it may be said to depend almost entirely upon the prevalence of influenza, for both broncho-pneumonia and lobar pneumonia have, with the exception of one or two years, particularly decreased during the past decade. Deaths due to certain diseases, such as typhoid fever, smallpox, measles, scarlet fever, malaria and diphtheria have decreased to a remarkable extent, in fact, almost to their eradication. It is a cause of great gratification that tuberculosis, both of the respiratory system and other forms, continues to show a remarkable decrease. The fact that those deaths due to puerperal conditions continue to decline, even in a small measure, is very gratifying, and the fact that diarrhea and enteritis has decreased from a death rate of 133.2 in 1900 to 16.4 in 1932 is worthy of comment, since the greater part of this decrease is in infants under two years of age. The decrease in the death rate may, therefore, be said to be due largely to preventive medicine, as illustrated by the great decrease in the group known as "Infectious and Parasitic Diseases."

MORTALITY AND NATALITY BY STATES
1932

Area	Death registration area in continental United States		Birth registration area in continental United States					
	Deaths		Live Births		Deaths under 1 yr.		Stillbirths	
	Number	Rate per 1000 Estimated Population	Number	Rate per 1000 Estimated Population	Number	Rate per 1000 live births	Number	Rate per 1000 live births
Registration area[1]	1,304,109	10.9	2,062,001	17.4	118,902	57.7	78,099	3.8
Urban	686,400	[2]	961,894	[2]	54,586	56.7	37,487	3.9
Rural	617,709	[2]	1,100,107	[2]	64,316	58.5	40,612	3.7
Alabama	27,680	10.3	62,939	23.5	3,835	60.9	3,089	4.9
Arizona	5,420	12.1	8,523	19.0	817	95.9	216	2.5
Arkansas	16,315	8.7	37,451	20.1	1,697	45.3	1,491	4.0
California	67,680	11.4	78,093	13.1	4,116	52.7	2,132	2.7
Colorado	12,599	12.0	17,613	16.8	1,259	71.5	559	3.2
Connecticut	16,962	10.4	23,731	14.5	1,173	49.4	685	2.9
Delaware	3,178	13.2	4,294	17.9	288	67.1	145	3.4
D. C.	7,937	16.1	10,157	20.6	740	72.9	432	4.3
Florida	18,288	12.0	27,402	17.9	1,674	61.1	1,550	5.7
Georgia	32,128	11.0	63,717	21.9	4,101	64.4	3,849	6.0
Idaho	3,942	8.8	8,732	19.5	379	43.4	236	2.7
Illinois	83,180	10.7	111,512	14.4	5,884	52.8	3,446	3.1
Indiana	38,756	11.8	53,073	16.2	2,903	54.7	1,518	2.9
Iowa	25,786	10.4	40,459	16.3	1,938	47.9	1,278	3.2
Kansas	19,512	10.3	31,700	16.7	1,525	48.1	894	2.8
Kentucky	29,059	11.0	59,438	22.5	3,767	63.4	2,014	3.4
Louisiana	23,311	10.9	43,298	20.3	2,804	64.8	2,186	5.0
Maine	10,719	13.4	16,129	20.1	1,017	63.1	546	3.4
Maryland	21,038	12.7	28,820	17.4	1,989	69.0	1,856	6.4
Massachusetts	49,446	11.5	68,534	15.9	3,624	52.9	2,328	3.4
Michigan	49,585	10.0	85,736	17.2	4,628	54.0	2,977	3.5
Minnesota	25,591	9.9	46,377	17.9	2,189	47.2	1,333	2.9
Mississippi	20,311	10.0	46,273	22.7	2,480	53.6	2,189	4.7
Missouri	43,738	12.0	59,949	16.4	3,430	57.2	2,477	4.1
Montana	5,294	9.8	9,091	16.9	467	51.4	254	2.8
Nebraska	12,922	9.3	25,159	18.1	1,091	43.4	693	2.8
Nevada	1,342	14.4	1,260	13.5	88	69.8	60	4.8
New Hampshire	6,329	13.5	7,808	16.7	460	58.9	300	3.8
New Jersey	42,914	10.3	61,219	14.8	3,075	50.2	2,291	3.7
New Mexico	5,968	13.8	12,391	28.7	1,479	119.4	390	3.1
New York	147,824	11.5	198,431	15.4	10,469	52.8	8,258	4.2
North Carolina	31,051	9.6	77,902	24.0	5,183	66.5	3,636	4.7
North Dakota	5,153	7.5	14,047	20.5	779	55.5	362	2.6
Ohio	76,286	11.3	101,753	15.1	5,951	58.5	3,453	3.4
Oklahoma	19,285	7.9	41,039	16.8	2,052	50.0	1,056	2.6
Oregon	10,277	10.6	12,847	13.2	531	41.3	322	2.5
Pennsylvania	109,204	11.2	168,534	17.3	10,113	60.0	6,020	3.6
Rhode Island	8,080	11.6	11,171	16.0	639	57.2	382	3.4
South Carolina	19,884	11.4	41,518	23.8	3,204	77.2	2,651	6.4
South Dakota	5,725	8.2	13,241	18.9	668	50.4	312	2.4
Tennessee	28,628	10.8	52,491	19.8	3,550	67.6	2,097	4.0
Vermont	4,753	13.2	6,030	16.8	381	63.2	184	3.1
Virginia	28,898	11.9	54,581	22.4	3,670	67.2	2,422	4.4
Washington	16,581	10.4	21,379	13.5	967	45.2	530	2.5
West Virginia	17,912	10.2	38,803	22.0	2,911	75.0	1,431	3.7
Wisconsin	30,321	10.2	53,107	17.8	2,675	50.4	1,457	2.7
Wyoming	2,057	9.0	4,249	18.6	242	57.0	112	2.6
Registration cities in non-registration state	15,260	11.7	[3]	[3]	[3]	[3]	[3]	[3]

Note: Figures are provisional.

[1] Exclusive of Utah.

[2] Population not available.

[3] Not in the registration area for births.

Cause of death	Death rate per 100,000 estimated population in the registration area in continental United States													
	1900	1910	1920	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932[1]
All causes (exclusive of stillbirths)	1,755.0	1,496.2	1,303.8	1,173.9	1,219.7	1,173.0	1,184.1	1,225.4	1,143.4	1,206.6	1,191.9	1,133.1	1,107.5	1,090.0
Typhoid and paratyphoid fever	35.9	23.5	7.8	7.4	6.8	6.7	8.0	6.5	5.5	4.9	4.2	4.8	4.5	3.7
Smallpox	1.9	0.4	0.6	0.7	0.1	0.9	0.7	0.4	0.1	0.1	0.1	0.1	0.1	[2]
Measles	12.5	12.3	8.8	4.3	10.7	8.5	2.3	8.2	4.1	5.4	2.5	3.2	3.0	1.6
Scarlet fever	10.2	11.6	4.6	3.5	3.5	3.1	2.7	2.5	2.3	2.0	2.1	1.9	2.2	2.1
Whooping cough	12.1	11.4	12.5	5.6	9.7	8.2	6.7	8.9	6.9	5.5	6.3	4.8	3.9	4.5
Diphtheria	43.3	21.4	15.3	14.6	12.0	9.3	7.8	7.5	7.8	7.2	6.6	4.9	4.8	4.5
Influenza and pneumonia (all forms)	203.4	162.1	208.0	132.6	152.4	116.7	123.4	143.5	103.2	143.5	147.2	102.7	107.7	107.8
Influenza	22.9	14.4	70.9	31.2	44.3	19.4	29.7	40.8	22.6	45.3	55.5	19.5	26.5	30.8
Broncho-pneumonia[3]	21.9	47.1	54.5	44.9	47.3	40.6	38.7	44.0	33.8	39.6	37.6	34.3	33.6	32.6
Lobar pneumonia	158.6	46.4	73.0	50.1	53.7	50.6	49.9	54.0	43.2	53.4	49.5	45.4	44.5	41.3
Pneumonia, unspecified		54.3	9.5	6.4	7.1	6.1	5.1	4.7	3.7	5.1	4.6	3.5	3.2	3.1
Erysipelas	5.1	4.5	3.1	2.5	2.7	2.5	2.4	2.6	2.4	2.4	2.5	2.1	1.9	1.6
Epidemic cerebrospinal meningitis	[4]	0.4	1.6	1.0	1.0	1.0	1.1	1.3	1.6	2.6	4.5	3.6	2.4	1.4
Tuberculosis of the respiratory system	180.5	136.0	97.0	84.3	81.3	78.0	75.9	76.6	71.4	70.3	67.6	63.4	60.7	56.6
Other forms of tuberculosis	21.4	24.3	17.0	12.1	11.5	11.7	10.8	10.7	9.5	9.0	8.4	8.1	7.5	6.4
Malaria	7.9	2.2	3.6	3.6	2.8	2.4	2.1	1.9	2.7	3.6	3.5	2.9	2.1	2.1
Cancer and other malignant tumors	63.0	76.2	83.2	86.2	88.7	91.1	92.8	95.1	95.7	96.1	95.9	97.2	98.9	102.2
Diabetes mellitus	9.7	14.9	16.0	18.3	17.7	16.4	16.9	18.0	17.5	19.0	18.8	19.0	20.4	22.0
Cerebral hemorrhage and softening	71.5	75.7	81.7	82.9	86.9	88.9	81.0	82.8	80.4	83.4	82.1	81.0	79.1	79.5
Diseases of the heart[5]	132.1	158.8	159.1	164.6	173.8	176.5	185.7	199.5	196.0	208.2	210.8	205.5	201.9	209.3
Bronchitis	45.7	23.4	13.2	9.3	9.0	7.2	6.5	6.6	5.4	5.2	4.7	4.2	3.8	3.6
Diarrhea and enteritis[6]	133.2	117.4	54.3	39.3	39.6	34.5	39.4	33.6	27.6	26.9	23.5	26.3	20.7	16.4
Appendicitis	9.7	11.4	13.4	14.1	14.7	14.8	15.2	15.0	15.0	15.3	15.2	15.3	15.2	14.2
Hernia, intestinal obstruction[7]	12.2	12.4	10.6	10.5	10.4	10.5	10.8	11.2	10.5	10.5	10.6	10.3	10.5	10.2
Cirrhosis of the liver	12.9	13.9	7.1	7.4	7.2	7.3	7.3	7.2	7.5	7.6	7.2	7.2	7.4	7.2
Nephritis	89.0	99.1	89.2	87.9	89.3	88.8	96.5	98.5	92.6	95.2	91.2	90.8	87.2	87.3
Puerperal septicemia	5.7	7.2	6.6	5.7	5.8	5.7	5.5	5.3	5.3	5.0	5.0	4.6	4.6	4.1
Other puerperal causes	7.6	8.5	12.5	9.9	9.7	9.6	9.3	9.1	8.5	8.8	8.2	8.2	7.3	7.0
Congenital malformations and diseases of early infancy	91.8	88.1	84.7	77.7	77.3	77.6	74.0	71.7	67.8	65.8	62.4	60.9	56.5	53.2
Suicide	11.5	16.0	10.2	11.8	11.5	12.1	12.1	12.8	13.3	13.6	14.0	15.6	16.8	17.5
Homicide	2.1	5.9	7.1	8.3	8.1	8.4	8.6	8.8	8.8	8.8	8.5	9.0	9.3	9.2
Automobile accidents[8]	[4]	1.8	10.4	12.4	14.7	15.5	17.1	18.0	19.6	20.8	23.3	24.5	25.2	21.9
Automobile and railroad-train collision	[4]	[4]	[4]	[4]	[4]	1.0	1.2	1.5	1.5	1.8	1.7	1.5	1.4	1.2
Automobile and street-car collision	[4]	[4]	[4]	[4]	[4]	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.3
Other external causes	79.0	82.6	60.9	57.1	61.1	58.8	59.7	58.9	57.0	56.3	55.5	54.2	51.6	48.0
Unknown and ill-defined diseases	73.8	23.1	17.7	17.6	17.0	17.5	17.4	17.8	17.6	20.6	20.9	21.0	18.9	17.5

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[1] Exclusive of Utah.

[2] Less than one-tenth of 1 per 100,000 population.

[3] Includes capillary bronchitis.

[4] Not separately tabulated.

[5] Excludes diseases of coronary arteries.

[6] From 1900 to 1920 includes ulcer of the duodenum.

[7] From 1900 to 1920 includes adhesions of intestines.

[8] Excludes deaths from collision with railroad trains and street cars.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF MEDICINE, 2 E. 103rd St., New York City, N. Y.

ALLIANCE AGAINST FRAUD, 36 W. 44th Street, New York City.

ALLIED DENTAL COUNCIL, 425 Lafayette St., New York City.

AMERICAN ACADEMY OF APPLIED DENTAL SCIENCES, 587 Fifth Ave., New York City.

AMERICAN COLLEGE OF SURGEONS, 40 E. Erie St., Chicago, Ill.

AMERICAN GYNECOLOGICAL SOCIETY, 104 S. Michigan Ave., Chicago, Ill.

AMERICAN HEART ASSN., INC., 450 Seventh Ave., New York City.

AMERICAN INSTITUTE OF HOMEOPATHY, 393 Seventh Ave., New York City.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC., 145 W. 58th St., New York City.

AMERICAN MEDICAL ASSN., 535 N. Dearborn St., Chicago, Ill.

AMERICAN OCCUPATIONAL THERAPY ASSN., 175 Fifth Ave., New York City.

AMERICAN OPHTHALMOLOGICAL SOCIETY, 2213 Walnut St., Philadelphia, Pa.

AMERICAN OSTEOPATHIC ASSN., 844 Rush St., Chicago, Ill.

AMERICAN PHYSIOLOGICAL SOCIETY, Rockefeller Institute, New York City.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, 531 N. Main St., South Bend, Ind.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, 1250 Sixth Ave., New York City.

AMERICAN SOCIETY OF TROPICAL MEDICINE, Vanderbilt University Schoo of Medicine, Nashville, Tenn.

AMERICAN VETERINARY MEDICA ASSN., 221 N. La Salle St., Chicago Ill.

ASSN. OF AMERICAN MEDICAL COLLEGES, 5 S. Wabash Ave., Chicago Ill.

ASSN. OF MILITARY SURGEONS OF THE U. S., Army Medical Museum Washington, D. C.

EDWARD L. TRUDEAU FOUNDATION FO RESEARCH AND TEACHING IN TUBERCULOSIS, Saranac Lake, N. Y.

NATIONAL LEAGUE OF NURSING EDUCATION, 450 Seventh Ave., New Yor City.

NATIONAL TUBERCULOSIS ASSN., 45 Seventh Ave., New York City.

NEW YORK ACADEMY OF SCIENCES 77th St. and Central Park West New York City.

NEW YORK HEALTH DEPARTMENT INC., 139 Centre St., New Yor City.

OSTEOPATHIC AID ASSN., 49 E. 41s Street, New York City.

PUBLIC HEALTH COMMITTEE, 2 E 103rd St., New York City.

ROCKEFELLER FOUNDATION, 49 W. 49t Street, New York City.

SOCIETY OF AMERICAN BACTERIOLOGISTS, Cornell University, Ithaca N. Y.

SOCIETY OF MEDICAL JURISPRUDENCE 2 E. 103rd St., New York City.

SOUTHERN MEDICAL ASSN., Empir Bldg., Birmingham, Ala.

UNITED HOSPITAL FUND, 122 E. 22n St., New York City.

UNITED STATES HAY FEVER ASSN Bethlehem, N. H.

DIVISION XXIV

PHILOSOPHICAL AND SOCIAL SCIENCES

PHILOSOPHY

By A. A. Roback

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GENERAL PUBLICATIONS

Reduction in Output.—The decline of the book market and the heavier teaching burden imposed upon instructors as a result of the financial stringency have conspired to reduce the philosophical output in America, although the quality of the material does not seem to have suffered. The production has been lowered proportionately in almost every department of philosophy — perhaps more in the field of the history of modern philosophy, the philosophy of religion, and the scientific aspects of philosophy. Curiously enough, although it may only be altogether fortuitous, ethics has held its own with logic a close second.

Elementary Introductions. — The general books on philosophy, including introductions and elèmentary texts are few but rather impressive works. Durant Drake has written an *Invitation to Philosophy* (Houghton, Mifflin, XXVI 537) which, both in form and in substance, promises to minister to the needs of the young student who often is bewildered by the maze of systems and theories set forth in the ordinary introduction. D. R. Major's *Introduction to Philosophy* (Doubleday, Doran, x 495), while lacking the stylistic qualities of the former, may be considered as a clear exposition in the traditional vein, with an eye to systematic exposition.

Philosophy for the Layman.—With the exception of a biographical series, referred to later, and a number of works on the philosophy of the present world situation, there is hardly anything to point to under the lay rubric which, for some years, had been fairly strong, unless one mentions Will Durant's new revised edition of *The Story of Philosophy* (Simon and Schuster, XXIV 592), the chief feature of which is the illuminating *apologia pro libro suo,* where the author defends himself against captious critics. The facts and figures in connection with the sales, translations, reactions on the public, etc., are interesting from a sociological point of view.

HISTORY OF PHILOSOPHY

Greek Philosophy. — That Greek philosophy should have fared better than modern philosophy is somewhat of a surprise, partly to be explained perhaps by the growing insistence of the humanists in America. Whatever the cause, however, Paul Shorey's *What Plato Said* (Chicago, VIII 686) will remain for many years to come the standard and most comprehensive exposition of Plato's works in English. Shorey has not attempted to read into Plato modern theories but merely interpreted his thought in terms of the Greek universe of discourse. In his *Heroic Age of Science* (Williams and Wilkins, VII 203), W. A. Heidel has gone into the conceptions, ideals and methods of science among the ancient Greeks, bringing some new material to bear upon the subject. A. K. Rogers' *The Socratic Problem* (Yale, IV 200) probes the mystery of the legendary Socrates with aplomb and insight, even if not too extensively.

Modern Philosophy.—The dearth of papers and books on the history of modern philosophy, which was at one time in the foreground of the philosophical field and which, in Germany and particularly France, still claims the attention of many philosophers, may be symptomatic of a growing anti-historical attitude akin to the reaction of scientists in Soviet Russia. In England the historical interest has scarcely waned, but in the United States one may record several papers only in the *Philosophical Review, The New Scholasticism* and the *Journal of Philosophy,* together with G. Boas's *The Happy Beast in French Thought of the Seventeenth Century* (Johns Hopkins, VI 159) which is as much folk-lore as philosophy. Spinoza's *The Man and His Thought* (Open Court) edited by E. L. Schaub contains several addresses on the occasion of the Amsterdam philosopher's tercentenary. S. M. Melamed's *Spinoza and Buddha* (Univ. of Chicago Press, 400), is a somewhat labored, although provocative, essay to prove that Spinoza's philosophy is in essence neither Jewish nor Christian, except in so much as the Pauline doctrine of Christianity is accepted, but of Eastern origin.

Hindu Philosophy.—Eastern Philosophy is represented by an enthusiastic account of contemporary philosophy in India under the title of "Recent Developments in Indian Thought" (*Journal of Philosophy,* Sept. 1933, Vol. XXX) and in H. McLaurin's popular presentation of the Yoga system (exploited not altogether in the interest of philosophy), entitled *Eastern Philosophy of Western Minds* (Stratford, XII 282).

ETHICS

Several significant treatises on and introductions to ethics have been published during 1933. E. D. Brightman's *Moral Laws* (Abingdon, 322) is an excellent approach from the personalistic side. Idealism of a different shade colors the discussion in Clifford L. Barrett's *An Introduction to the Philosophy of Moral Values* (Princeton Univ. Press, XI 484), which is a real contribution to the theory of value. Richard C. Cabot's *The Meaning of Right and Wrong* (Macmillan, XI 463) is a practical manual written from a sociological and psychological angle with illustrations from actual cases and characterized by a moralizing tone. F. S. Cohen's *Ethical Systems and Legal Ideals* (Falcon) is an attempt to show that ethics can be scientific and that it is the basis of law.

The Barbara Weinstock 1932 lecture on the "Morals of Trade" by H. S. Dennison was published under the title of *Ethics and Modern Business* (Houghton, Mifflin, 1932, 68). Probably everyone interested in ethics will agree that "while business is business, business is also life and a rapidly growing part of all life. If we can't win through reasonable ethical standards in business, we have a mighty small chance of winning anywhere along the line."

LOGIC

Peirce's Logic.—The third volume of the *Collected Papers of Charles Sanders Peirce* (Harvard University Press, XIV 433) is devoted to exact logic. If the first two volumes have revealed the vigor of Peirce's mind, this third volume establishes at once his position as one of the greatest logicians of his age. This part of Peirce's work deals primarily with the logic of relatives and the algebra of logic, but there are chapters on dyadic relations, the logic of number, and on Boole's calculus of logic. The nomenclature is somewhat formidable, but the exposition of the most intricate issues is clear and interesting. While it is true that many, if not all, of Peirce's problems have undergone a transformation in the generation which has elapsed since he delved into them, there is still freshness about the treatment and imaginative coloring to his logical thought. What is perhaps most admirable about Peirce's accomplishment is the wealth of illustrative material as also the fact that he is never at a loss to find suitable symbols and terms for his concepts.

Textbooks in Logic. — Another book which harks back to the past is the new edition of John Dewey's *How We Think* (Heath, x 302) widely quoted by scientists other than logicians. The only new textbook in logic is by F. M. Chapman and P. Henle, whose *Fundamentals of Logic* (Scribner, XIII 314) is based on R. Eaton's earlier text, although deviating from it in a number of respects.

Logical Controversies.—Of all the branches of philosophy, logic seems to enjoy most the group spirit. The replies and rejoinders, debates and discussions among logicians often seen in the philosophical journals would tend to prove that logic is still in its adolescence and, furthermore, that there is a hearty coöperation among the devotees of this discipline. Perhaps one reason is that there is not so much to read as in other branches of philosophy.

Some Issues.—One of the chief issues aired in the periodicals is that between two-valued and multi-valued systems. The tilt between D. W. Prall and Marie Swabey (*Journal Philos.*, XXX 5, March 1933), appears to be between the abstract or perhaps *a priori* and the experimental aspects of logic, there being much less of a difference at bottom than the disputants themselves realize. Most of the logical discussions appear in *The Monist.*

THEORY OF KNOWLEDGE

Possibility.—*Possibility* is the title of the latest series of lectures of the California University Philosophical Union. Nine members of the Faculty at the University have contributed papers to this excellent volume discussing the subject of possibility from various angles.

Idealism.—G. P. Conger's *The Horizon of Thought* (Princeton, x 367) is a solid treatise on the duality of thinking, pointing out that every thinking process involves not only selection but also a corresponding neglect of data and that this mental dualism is grounded in the processes and structures of the universe. In his *Idealistic Argument in Recent British and American Philosophy* (Century XIII 547) G. Watts Cunningham examines carefully the systems of Royce, Bradley and Bosanquet in a vindication of the idealistic philosophy. Cunningham expounds anew the old arguments with reference to the existence of God, attaching special significance to the argument *a contingentia mundi,* which he promises to develop more fully in a subsequent volume.

The hoary dispute between idealism and realism has for some years been dormant in American philosophy, but C. Barrett's *Contemporary Idealism in America,* alluded to in last year's survey, has been instrumental in reviving the feud. J. B. Pratt, who recalls the days when the issue between the two extreme philosophies was clear-cut, asks rather pointedly "Is Idealism Realism" (*Jour. of Philos.,* vol. xxx, March 1933), and elicits two replies: C. Barret, who edited the volume in question, answers in terms of objective idealism, contending that the two schools are "not identical but neither are they in opposition, since they are not offering contrary solutions to the same problems. The realist in epistemology is an idealist in metaphysics." C. S. Brightman's reply to Pratt is in terms of the personalistic platform in which there are nine planks.

A. Korzybski's *Science and Sanity* (Non-Aristotelian Library xx 798) may be classified under two or three different rubrics, but probably it falls best under epistemology. Korzybski is at pains to break down the traditional Aristotelian approach in logic and to work out a system of concepts in keeping with psychological requirements.

Ideas and Civilization.—Those who have turned away with a sense of disappointment from Whitehead's *Process and Reality,* because of its highly speculative and scholastic nature, will read with keen satisfaction the same author's *Adventures of Ideas* (Macmillan, XII 392) which is a philosophical history of civilization or a philosophy of history. Whitehead analyzes civilization into patterns of behavior, patterns of emotion, patterns of belief and technologies. The element of belief seems to be stressed above the other three elements. Whitehead's point of view is optimistic and akin to Kant's stand in the *Critique of Practical Reason.* "The temporal World is the stage of finite accomplishment." Theology is to "express that element in perishing lives which is undying by reason of its expression of perfections proper to our finite nature." The book does not take into account psychoanalytic theory, sociological premises or concrete data. A Platonic realism coats the argument throughout. It is probably from another angle that civilization will be viewed in *The Story of Civilization* which Will Durant is preparing.

SCHOLASTICISM

Aside from the historical articles on Catholic philosophy which appeared largely in *The New Scholasticism,* a few textbooks have been published, among them *Metaphysica Generalis,* (St. Mary's Mission, XIV 284), and a *History of Modern Thought* (Fordham) by M. J. Mahoney. Both are in the Roman Catholic tradition. The latter volume contains an account of Irish philosophy.

RELIGION AND SCIENCE

The coupling of religion and science in this section is not arbitrary. There are practically no books on the philosophy of science for 1933, and nearly all the philosophical volumes which treat of science have a religious background or motivation. These two elements seem to be the solubles of old-time metaphysics. P. R. Anderson in his *Science in Defense of Liberal Religion* (Putnam, 232) has made a study of Henry More's attempt to link religion with science in the Seventeenth Century. B. Brownell's *Earth is Enough* (Harper) is a plea for religious realism which will not appeal to the orthodox. G. T. Buckley has given us in his *Atheism in the English Renaissance* (1932, Chicago University Press, XII 164) a not readily accessible account of the religious attitude, a few centuries ago in England, while W. N. Sullivan writes a brief for religion by defacing the tablets of science in *The Limitations of Science* (Viking).

The Terry Foundation Lectures at Yale University were given by John Dewey, whose topic was "Religion in the Light of Science and Philosophy." A commemorative volume, *The Process of Religion* (Macmillan, 266) has been brought out under the editorship of M. H. Krumbine, in honor of Shailer Mathews, on the occasion of his seventieth birthday.

HUMANISM

The cause of humanism has lately won a number of adherents or at least sympathizers. The periodical *The New Humanism* is devoted to the issues centering around this movement. A discussion of the various types of humanism is contained in L. J. A. Mercier's *The Challenge of Humanism* (Oxford University Press, XII 288) which is at the same time a severe indictment of naturalism. Mercier's solution of the world's ills lies in the return to the "Kingdom of God."

LEGAL PHILOSOPHY

A collection of papers under the title of *Law and the Social Order* (Harcourt Brace, XII 403) has been brought out by Morris R. Cohen. The volume contains a number of estimates of distinguished jurists as well as several book reviews. The relationship between ethics and law was dwelt on by F. Cohen (*V. S.* ethics).

BIOGRAPHY OF PHILOSOPHERS

A new series of philosophical biographies is now being published by Appleton. Thus far, *Socrates* by A. E. Taylor and *St. Augustine* by Rebecca West have appeared. Other volumes are in preparation. C. M. Perry has a full-size portrait of a reflective administrator in his *Henry Philip Tappan, Philosopher and University President* (Univ. of Michigan Press, XI, 475).

POLITICAL AND SOCIAL PHILOSOPHY

Overstreet.—As a result of world conditions and the attendant social unrest, abstract philosophy is not receiving as much attention in the intellectual world as works on concrete problems which are besetting a suffering humanity. The keynote has been sounded by H. A. Overstreet who writes in *We Move in New Directions* (Norton, 284): "There come times in the history of life, when with changing conditions, old conceptions suddenly reveal themselves as inadequate, or misdirected or actually destructive of life values, and when new ideas blow in to take their place. In such periods new civilizations are born." The concept of "social responsibility" which Overstreet develops to take the place of the now *déclassé* "rugged individualism" is reminiscent of Scheler's philosophy. A similar plea is made in H. Kallen's *Individualism, An American Way of Life* (Liveright, x 241) in which the author calls for an individualism on a socialistic basis.

Henry George.—*The Philosophy of Henry George* (Macmillan, XIX 581) by G. R. Geiger contains an exposition of the great American thinker's economic theories, examined in the light of pragmatism and ethics. A thorough presentation, it may be brought in line with many of the issues discussed today. The relations between George and Marx, George and Spencer, as well as George's attitude on religion, but particularly the ethical solution of Henry George are well brought out.

Marx.—Of a still more actual or timely nature is S. Hook's *Towards the Understanding of Karl Marx* (Day, XIV 347) a book which was written to commemorate the fiftieth anniversary of the Prophet of Socialism. Hook has attempted to interpret Marx objectively, steering a middle course between the revisionism of Bernstein and the irrationalism of the syndicalists, or even the Communism of Stalin, declaring that he is not in favor of orthodox Marxism, since Marx himself was anything but an orthodox Marxian. Abundant quotations are introduced to confirm this paradoxical thesis, and special attention is given to the dialectic strain of Marx's philosophy, without, however, reconciling the extreme moments in Marx.

Communism.—The academic preoccupation with Communism, which ten years ago would have been scarcely anticipated, is becoming more and more evident. T. B. Bramfield has supplied to English readers the first theoretical scaffolding of extreme radicalism in his *Philosophical Approach to Communism* (Univ. of Chicago Press, XI 242); the chief feature of this book is its copious documentation. In the last analysis, the basis seems to be psychological or constitutional, the elements at work being the states of quiescence and agitation. That Communism is no longer regarded as a spectre even by the most conservative in the United States may be gathered from the fact that Whitehead in his *Adventures of Ideas* remarks that it "is interesting to compare the Christians in the Roman Empire, from Nero to Trajan, with the Communists in modern America" (p. 69). Such books as *Recovery Through Revolution* (Covici, Friede, VI 504), a symposium edited by S. D. Schmalhausen, *The Menace of Fascism* (Covici, Friede, 272) by John Strachey and *Trial by Prejudice* (Covici, Friede, 369) by A. G. Hays, while not discursive in treatment, give the reader "furiously to think."

AESTHETICS AND LITERARY PHILOSOPHY

There has been decidedly little activity in the field of aesthetics or the philosophy of art. Probably the most important work of the year is a *Bibliography of Aesthetics and of the Philosophy of the Fine Arts from* 1900 *to* 1932 by W. A. Hammond. The philosophical basis of Hazlitt's criticism is the subject matter of Elizabeth Schneider's *The Aesthetics of William Hazlitt* (University of Pennsylvania Press, 200). In the *Anatomy of Criticism,* Henry Hazlitt has opened up afresh some of the old issues; in particular, the purely mechanistic view of literature as against the interpretative. Other issues discussed in the form of a Platonic dialogue and with much lucidity are those of realism *vs.* romanticism, Marxism *vs.* Tolstoyism, values *vs.* facts, subjectivity *vs.* objectivity and tradition *vs.* revolt.

AMERICAN PHILOSOPHY ABROAD

The November, 1932, issue of *Logos* has been devoted entirely to an exposition and discussion of American philosophy. Whitehead's work and neo-realism receive considerable attention in this Amerika-Heft. Royce, who has been appreciated in Italy more than in any other European country, has recently received some recognition in France. The second pamphlet in French on Royce's philosophy (the first having already been reported on last year) is M. Sosset's *Le rôle des théories psychologiques dans l'œuvre de Royce.*)

MISCELLANEOUS

Powys.—A remarkably reflective volume dealing with one of the conditions of philosophy is J. C. Powys's *A Philosophy of Solitude* (Simon and Schuster, 233). Not only does the little volume contain a number of pregnant thoughts on life but it is inspirational in a genuine sense and may be helpful to many lonely souls.

Commemorative Volumes.—A number of addresses sponsored by the Philosophy Club in Chicago have been brought together by E. L. Schaub under the title of *Spinoza, the Man and his Thought* (Open Court, 61). A similar volume commemorating the Goethe centenary was prepared by M. Schutze (Open Court, VIII 174). The second volume of the *College of the Pacific Publications in Philosophy* appeared under the editorship of P. A. Schlipp (College of the Pacific, 136).

Carus Lectures.—The Carus lectures for 1933 were delivered at the University of Chicago by W. P. Montague who spoke on ''Philosophy as Vision''; ''Democritus and the Vision of a World of Atoms''; ''Plato and the Vision of Eternal Things.''

Philosophical Index.—A committee of the American Philosophical Association is considering plans for the publication of an annual index of philosophical titles similar to the *Psychological Index,* to supplement Rand's two quarto volumes of philosophical bibliography in the *Dictionary of Philosophy, Psychology and Scientific Method.*

MEETINGS

One of the most important philosophical meetings to be held in America took place September 6-9 in Chicago when there were joint sessions of the Eastern, Western and Pacific Divisions of the American Philosophical Association. M. T. McClure's presidential address was on the ''Greek Conception of Nature.'' A feature of these meetings was the round table discussion. The Eastern Division of the American Philosophical Association meets during the last week in December at Amherst College. At the meeting of the American Catholic Philosophical Association, which took place at the Sacred Heart Seminary in Detroit, the general subject discussed was ''Current American and British Realism.'' The presidential address by J. A. McWilliams was on neo-scholasticism in relation to other philosophies. The 1933 meeting is to take place during the last week in December at Duquesne University.

OBITUARY

The year 1933 has carried off four of the most prominent teachers of philosophy in the United States. George Herbert Palmer, who will be remembered by two generations of Harvard men for his inspired lectures, died at the age of 91, while Felix Adler, founder of the Ethical Culture movement passed away in his eighty-third year. John Grier Hibben, president-emeritus of Princeton University, was killed in an automobile accident at the age of 72. Woodbridge Riley of Vassar, who ranked as the ablest historian of American philosophy, died in his sixty-fourth year.

PSYCHOLOGY

By Wilbur S. Hulin

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INTRODUCTION

Current Trends.—Psychology, like other sciences, possesses distinct fields of observation. There are many problems of modified or learned behavior which are psychological rather than physiological. For example, the benefits to digestion of agreeable surroundings during a meal are as important as are proper rules of dietetics. Psychology also seeks to understand the nature of conscious awareness itself. For example, an accurate introspection of the localization of organic sensations, or a knowledge of the margin of *error* that is normal in perceiving such localization, permits the medical practitioner to give the correct value to a patient's description of his feelings. The problems of modern psychology arose largely from the demands of the physiologist and physicist in the last century, and the current trends of interest in psychological laboratories must be understood accordingly. Every year witnesses an increasing concentration upon comparative—animal and genetic—problems, for only in the origins and development and simpler situations of appearance of psychological processes can the variable complexities be adequately analyzed.

Example of a Present-day Problem.—Many defects of hearing might be successfully treated if it were known just where the disturbance was located in the sense organ in the inner ear. Impairment of hearing due to prolonged sounds, as in "boiler maker's deafness," or to chronic congestion, as in tinnitus, seems to indicate a destruction in the cochlea of distinct sections of the row of fibres which seem to vibrate sympathetically with given tones. Some post-mortem examinations in humans substantiate this idea. But the opportunities arising from such clinical studies to confirm the theory are few, and a reliance upon such observations alone would involve a costly delay of progress. Therefore, controlled conditions have been sought under which to determine as concisely as necessary or desirable the exact effects which take place in the loss of hearing. Such an investigation cannot be conducted at will upon humans, hence the problem becomes one for comparative psychology with a judicious and considerate use of animal subjects. First, a determination of their ability to hear and their ability to discriminate tones must be made. As in our fellow humans, whose consciousness we only infer when they respond the same as we do in a given situation, likewise in the animal we do not philosophise about the ultimate nature of consciousness, but utilize certain invariable responses, especially "conditioned responses," which follow given stimulation. For example, a mild electric shock causes a gasp which can be recorded pneumographically. If habitually preceded by a given tone the gasp will eventually be elicited by the tone alone in the absence of the shock, and the gasp will not occur for slightly different tones which have been presented repeatedly without a shock. Thus an animal can be trained to respond practically to as small a difference of tonal pitch as can be determined in humans by the introspective psychophysical methods. Furthermore, only recently has it been possible, through the use of radio-frequency apparatus to have any assurance of producing single pure audio frequencies of pitch. Next, the animal may be submitted for several hours daily to a given pitch to which it has previously been conditioned. And as G. P. Horton has shown in his "Quantitative Study of Hearing in the Guinea Pig" (*J. Comp. Psych.*, Feb.) a loss of auditory sensibility results, both in the cessation of the gasping response and also of the ear twitch, whereas some other pitch to which the animal has also been differentially conditioned will remain as audible as before. The next problem is a histological one of dissection. With all precaution against dehydration and with immediate fixation of tissues by means of injections through the circulatory system just before death, an examination of preparations of cochlear tissues may reveal some anatomical changes. Also a test of the electrical characteristics of the nerve impulse, which is now possible through the use of radio tubes which amplify the impulses, an examination can be made of the physiological process which also may reveal some alteration. Other tests are possible such as cauterization of regions of the cerebral cortex in animals which have been anaesthetized and then with recovery of the animal a test can be made of auditory sensibility in order to determine whether there is any rough localization of auditory function in the brain. In this description of an experimental problem, one which is actually in progress (as reported by Horton) a glimpse may be obtained of one of the most prominent types of interest in psychology in America today.

VISION

Sensory. — In describing ''color phenomena from adjacent retinal areas for different temporal patterns of intermittent white light,'' G. A. Fry has shown that with different temporal rhythms of exposure different colors surround the area of white vision: this observation supports Troland's theory that color vision may depend not only on the retina but on ''modulations'' within the optic nerve-current (*Amer. J. Psych.*, Oct.). A widespread interest has developed regarding the outer or peripheral field of vision; the characteristic differences between peripheral and central or foveal vision are important for the physiology or vision. M. B. Drury has shown that ''progressive changes in non-foveal perception of line patterns'' can be brought about through training; this indicates that there is a response factor in visual experience (*ibid.*). C. R. Garvey has added evidence to the present belief that there is not enough sensitivity in ''the blind spot'' to account for the visual experience which seems to ''fill in'' the optic disc (*J. Exp. Psych.*, Feb.).

Perceptual.—A. D. Granville has revived the problem of ''the psychological significance of the horopter''; the horopter, which is the zone of vision in which objects should fuse perfectly because of their focus upon corresponding points of the retinae, never does properly conform to calculations; the discrepancies persist even with improved technique and correction for refractive errors, so the validity of the concept of the horopter is again thrown into doubt (*Amer. J. Psych.*, Oct.). F. C. Thorne and K. M. Dallenbach have measured the changes in ''spatial perception'' in the region of the blind spot and have found that sometimes the apparent size of objects shrinks though again the objects appear the same as in the other parts of the retina (*ibid.*, July). M. F. Washburn and A. Gillette have proposed a rather new hypothesis, namely that visual depth perception is aided by the shift in retinal rivalry; this hypothesis is supported by evidence obtained from ''cube perspective'' in which different varieties of rivalry altered the judgment of solidarity of the cube (*ibid.*, Apr.). K. W. Braly has attacked the Gestalt psychologist's denial of past experience by showing its influence in ''visual perception'': the repeated presentation of figures of a given sort, such as squares, will cause the observers to see other figures as square in subsequent presentations (*J. Exp. Psych.*, Oct.). M. A. Tinker, who has experimented widely in reading habits, has shown that there are ''limitations of eye-movement measures'' especially when definite rhythms appear indicating an automatized type of movement (*Psych. Rev.*, July).

AUDITION

Sensory.—For the beginning experimentalist in the field of audition G. W. Stewart's *Introductory Acoustics* will be of use both for the physics and the psychology of sound. E. G. Wever has made a thoroughgoing review of the present status of "the physiology of hearing"; he has described the nature of the response of the cochlea according to the resonance hypothesis, the telephone hypothesis and the hydraulic hypothesis; from a study of the action currents of the auditory nerve a new point of view, the 'volley' hypothesis, is proposed; this hypothesis combines the features of several of the others (*Physiol. Rev.*, July). F. L. Dimmick has found that changes in wave amplitude produce changes in auditory volume, brightness and pitch as well as intensity; thus this physical dimension leads to a multiplicity of changes in the attributes: "auditory experience and wave amplitude" (*Amer. J. Psych.*, July). L. A. Petran has shown that with pure tones free from partials there is very poor "pitch discrimination" for tones below 50 d. v. (*ibid.*, Apr.).

Perceptual.—H. C. Taylor has shown that the "pitch of English vowels" varies in a definite manner, the pitches of the long *o*, long *a*, short *e*, short *i*, and long *e* are progressively higher in this order (*J. Exp. Psych.*, Aug.). The "localization of sounds" has been tested in various ways, *e. g.*, with intensity, time and phase differences to each ear also the method of indicating the localization has been variously tested. L. D. Goodfellow has shown that a visible perimeter technique, in which illuminated figures are read off in the dark, is more accurate than pointing (*ibid.*). J. P. Guilford and R. A. Hilton have described some configurations involved in "melodies" such as the cohesion of a given melody through transposition or slight change of individual notes (*ibid.*, Feb.). Irrespective of the latency of the sense organs W. F. Smith has found that visual responses are quicker than auditory responses at the perceptual level, but the relative quickness is affected by the intensity of the stimuli (*ibid.*, Apr.).

OTHER SENSES

Sensory.—Using a sewing needle as the stimulus M. Burns and K. M. Dallenbach have studied the "adaptation of cutaneous pain"; although varying in time for different skin areas adaptation did occur, contrary to the denial claimed by many textbooks (*Amer. J. Psych.*, Jan.). The general topic of "cutaneous sensation" has been reviewed by S. N. Ranson, noted anatomist, who has described the recent work with action currents of the nerves, by which it has been shown that, as a cutaneous nerve is cocainized, the smallest fibres are the first which cease to show action currents, then the medium sized, then the largest fibres; at the same time introspection shows that the sensibility is lost in the order of pain, cold, warmth, pressure and kinaesthesis (*Science,* Nov.).

Perceptual.—A modification of the lifted weight experiment has been made by H. Woodrow in his study of "Weight Discrimination with a Varying Standard"; in concession to several Gestalt studies it is agreed that the individual judgments of weights depend upon the general motor attunement established by the time-order and contrasting intensities of effort induced by the different standard weights which are judged (*Amer. J. Psych.*, July). By the method of single stimuli G. D. Fry and others have shown that in obtaining the "cutaneous two-point limen" the errors occurring with the wider stimulus separations scatter more than do those with narrower separations (*J. Exp. Psych.*, Oct.). Tactual discrimination by the "non-preferred hand" is just as keen as with the preferred hand; there is only a difference in habit (*ibid.*, Apr.). "Moisture" is an experience consisting of sensory warmth or sensory coldness plus sensory pressure according to C. E. Lauterbach and R. E. Cronser (*ibid.*).

METHODS AND APPARATUS

Psychophysics.—F. M. Urban, the leading authority on psychophysical methods, has discussed the relation between "Weber's law and mental measurement," showing the ultimate convergence of these two measures (*ibid.*). Psychology has not yet produced the handbooks of tabulated data such as have been collected in physics and other sciences, and H.

Carr has reviewed "the quest for constants" in psychology; the necessary variability in psychophysical phenomena is responsible for the greater difficulty in determining central tendencies (*Psych. Rev.*, Nov.). C. C. Pratt has attacked "the time error in psychophysical judgments" showing that with auditory intensities and also with lifted weights the error which generally causes the stimulus first presented to appear relatively more intense becomes reduced with greater lapses of time, especially after an interval of 3 seconds (*Amer. J. Psych.*, Apr.).

Apparatus.—Better tachistoscopic control has been made possible through the use of the "condenser-charge timer" devised by W. D. Moeder and J. G. Jenkins (*ibid.*, Oct.). Moving pictures or stroboscopy can be induced without intermittent illumination if the observer's head be vibrated, causing "impressed eye-movements," or better still by vibration of a mirror (*Science*, Nov.). "Cellophane membranes" have been successfully substituted in many places where rubber membranes are usually used in instruments (H. Schlosberg, *ibid.*, July).

AFFECTION

Feeling.—H. G. Wyatt's book on *The Art of Feeling* includes psychology, aesthetics and ethics. W. Spence and J. P. Guilford have observed "the affective value of combination of odors," finding some highly preferred fusions as of orange and peppermint, anise with cinnamon, etc., and very disagreeable combinations as of CS_2 with stale cheese; in these pairs of odors the dominant one determined the affective reaction (*Amer. J. Psych.*, July). An attack on Nafe's "meaning of pleasantness and unpleasantness" has been made by W. A. Hunt who doubts the similarity of these experiences with bright and dull pressure; instead he thinks that pleasantness and unpleasantness are dependent on action of the thalamus in the brain and, therefore, cannot be described in sensory terms (*ibid.*, Apr.). "Color preferences" of more than 1200 students have been listed by W. E. Walton and others who conclude that men are more constant in their preferences from year to year than are women (*ibid.*). F. C. Davis has shown that despite a skeptical attitude on the subject, people will nevertheless come to give a judgment of "aesthetic proportion" as of preferable proportions of rectangles, at least when faced with extreme alternatives, such as proportions of two inches by two feet; in a class of college students the general preferences approximated the proportions most used by the early Greeks (*ibid.*). The "change in affectivity with repetition" varies according to circumstances. E. M. Verveer, H. Barry and W. A. Bousfield have shown that unpleasantness arises with continuous repetition and an equilibrium or habituation or indifference comes with spaced repetitions (*ibid.*, Jan.).

Emotion.—An amusing controversy has been waged over the subject of emotion by M. F. Meyer who has claimed that emotion is not a separate psychological entity and so is a "whale among fishes," but D. A. Worcester has replied "in defense of the whale" that emotion is a useful concept (*Psych. Rev.*, May & Sept.). H. Cason has described "an interacting pattern of the affectivities" according to which the differences between emotional expression in individuals and also the contradictions in organic patterns of response may be accounted for by dividing all psychological processes into warm (infantile) and cold (cognitive) types of response (*ibid.*, May). G. W. Allport and P. E. Vernon have prepared a much needed survey of the methods and results of *Studies of Expressive Movement* found in emotion, effort and other states.

HIGHER PROCESSES

Attention.—H. R. Crosland has devised "a technique to control and to measure the effects of fixation in the range of attention experiment" which involves a very definite control of the visual direction of regard in tachistoscopic presentations (*J. Exp. Psych.*, June). I. Anderson and H. R. Crosland have also shown that the "effect of primacy of report," depending upon preliminary fixation, may be influenced either by objective conditions, such as style of type, or by subjective conditions (*Amer. J. Psych.*, Oct.).

Thinking.—The endless debate concerning "insight *vs* trial-and-error" has been carried by W. Hartman to the study of problem solving, and in the characteristic American analytical manner he has decided that both factors are present: there is a trial-and-error insertion of elements into the reasoning process and then there is insight consisting of a familiar element operating in a new setting (*ibid.*). In studies of thinking there has been but little comparison between "serial learning and generalizing abstraction," both of which represent ways of accumulating experience; L. Arons has shown that people vary independently in these two ways of acting (*ibid.*, July). S. N. F. Chant has devised an interesting "objective experiment in reasoning": coats of arms containing different combinations of designs were presented with different groups of legends about the designs; the observers were to identify the designs and legends; various types of reasoning were exhibited; the dubious process of inference from common experience was frequently shown (*ibid.*, Apr.).

RETENTION

Memory.—The old curves of memory presented by Ebbinghaus in the Eighties have undergone considerable modification or qualification. The principal feature of new studies has been to analyze the "curves of memorization" at any given stage or condition of practice independently of the length of the list, in other words to analyze the memory process rather than to restrict the measurements to the old criteria of primacy, recency, etc. (J. A. McGeogh, *ibid.*, Oct.). There is an "alleged warming-up effect in memorization," but M. B. Mitchell has also found a development of retro-active inhibition with the continuation of memory efforts which counteracts the other factor (*J. Exp. Psych.*, Feb.). I. Lorge has found that "intensified reward and punishment" are no more effective than mere symbolic reward and punishment (*ibid.*, Apr.).

Learning.—G. Humphrey has given a current exposition of *The Nature of Learning*. There are always studies of "transfer of training." T. W. Cook has shown that transfer of mirror tracing ability from hand to foot is about the same as transfer from foot to hand (*J. Exp. Psych.*, Oct.). The "hands-together" method seems better in the "learning of piano music" than a "hands-separate" method, according to R. W. Brown (*ibid.*, June). M. C. Barlow has tested the "influence of electric shock in mirror tracing" as a test of punishment in learning; the results showed an increase in caution and therefore in time of learning although with the same amount of practice the errors were less (*Am. J. Psych.*, July). E. M. Siipola and H. E. Israel have shown that the greatest "habit-interference" occurs between incompatible tasks in which an equal amount of training has been recorded (*ibid.*, Apr.).

MOTOR PHENOMENA

Tonus.—A person may fail at a task because he has tried too hard. G. L. Freeman has analyzed the "facilitative and inhibitory effects of muscular tension upon performance" and has found a state of confusion arising from a background of increased tension; the experimental task consisted of problems in addition; the subjects were either spurred on by definite hope of winning a money prize or were subdued by the lack of promise; the latter state often proved more efficient (*Amer. J. Psych.*, Jan.). In many performance tests, as of steadiness, too little caution has been paid to the presence of natural tremor, so I. C. Young has measured the "tremor in normal subjects" (*J. Exp. Psych.*, Oct.). General muscular tension, as measured by strain of arm and hand pressure, increases steadily as the intensity of illumination increases logarithmically is shown in "visual effort," by M. Luckiesh and F. K. Moss (*ibid.*, Aug.).

Concomitant Movement.—C. Goldthwait has taken careful measurements of "the relation of eye-movements to mental imagery"; using a mirror on the eyelid, the displacement of a beam of light in the mirror indicated the movements of the eyeball underneath; the imagery invoked consisted of the recall of complicated orders of appearance of lights placed in a row; it was found that although movement increased with greater attentive effort the agreement with given types of visual imagery was slight (*Amer. J. Psych.*, Jan.). E. F. Tait has confirmed the presence of a "reciprocal reflex system in the accommodation - convergence relationships" of binocular vision; either accommodation or convergence can be the primary stimulus arousing the other (*ibid.*, Oct.).

Conditioned Response.—Among the studies of the conditioned response C. R. Gurney has demonstrated the usefulness of "conditioned respiratory changes" in humans; it has been a very useful method in animal study, and the refinements gained by observations on humans will aid in the former (*J. Exp. Psych.*, Aug.). J. E. Wenrick has discussed the "conundrum of the conditioned response" saying that the highly stressed temporal relation between conditioned and unconditioned stimuli shows great variability in different experiments and cannot stand as an adequate criterion (*Psych. Rev.*, Nov.). W. McDougall has described *The Energies of Man* in terms of rather transcendental hormic drives.

ANIMAL PSYCHOLOGY

General.—H. Klüver has compiled his studies on *Behavior Mechanisms in Monkeys.* M. L. Munn has written a handbook on the behavior of the rat called *An Introduction to Animal Psychology.* In the "Animal Psychology number" (*Psych. Bull.*, Apr.), G. H. S. Razran has surveyed the work on "conditioned responses in animals other than dogs." T. M. French has depicted "interrelations between psychoanalysis and the experimental work of Pavlov," and has submitted the hypothesis that "the activating influence of the wish upon motor activities directed toward its realization is a direct effect by induction of the inhibition of its reality value," *e. g.*, in Pavlov's animals hunger broke down many inhibitions (*Amer. J. Psychiat.*, May).

Special Responses.—With "complete striate muscle paralysis" induced by curarization, an animal will not become conditioned to new stimuli nor show learning (*J. Exp. Psych.*, Apr.). Animals, in aquatic mazes, learn more quickly when the water is cool and learn less well when the water is nearly hot — described in "Effect of Temperature," by E. R. Hack (*ibid.*, June). J. E. Shepard has described some "higher processes in the behavior of rats" such as a slight general concept of the relative position of blind alleys (*Proc. Nat. Acad. Sci.*, Jan.).

ABNORMAL

Psychoanalysis. — W. Stekel has spoken very optimistically of the "future of psychoanalysis" especially as a safeguard against the great amount of "false education" to which modern man is submitted (*Psychoan. Rev.*, July). D. B. Klein has made an historical and critical appraisal of "Psychology and Freud," contending that Freud articulates the facts of mental life in a better fashion than does general psychology (*Psych. Rev.*, Sept.).

Systematic Discussions. — W. A. White has reminisced objectively and subjectively, showing the change in the treatment of mental diseases in *Forty Years of Psychiatry.* N. D. C. Lewis, a director of clinical psychiatry, has made a valuable study of "suicide" in terms of its social, mental, physiological, and even histrionic phases (*Psychoan. Rev.*, July). C. L. Hull has proposed a new thesis regarding *Hypnosis and Suggestibility* in which he has included the most general attitudes of the subject such as that of assent, as well as the establishment of individual conditioned responses. W. Freeman has brought out a comprehensive introductory book on the anatomical foundations of *Neuropathology.* H. J. Baker has expressed the belief that there still is a lack of "mental hygiene in education'' (*J. Educ. Res.,* May). On the other hand a celebration was held at Yale of the ''twenty-fifth anniversary of the founding of the mental-hygiene movement'' (*Ment. Hygiene,* Oct.).

Special Pathology. — H. Babcock has written a book on *Dementia Praecox* indicating a solution to the present controversies regarding the limits of classification of this extensive class of insanity; dementia praecox, which at one time included 55 per cent of all the insane, was called a ''dumping ground'' for all unclassifiable cases; later, the term ''schizophrenia'' was substituted by many psychiatrists as a more descriptive name for the major symptom of the disease, namely a splitting off from normal integrated activity of the individual's behavior, and a sort of retreat into extremely introverted states or exaggerated day-dream states. J. B. Miner has described a method of ''psycho-medical correction of the drug habit'' according to which there is a close association between introverted personality and alkaloid drug habits; a personal inventory examination might aid in determining the course of cure to effect (*J. Abn. & Soc. Psych.,* Sept.). M. Levin has demonstrated that ''bromide delirium'' is often the result of supposedly harmless doses of medicine; the recent discovery of this type of poisoning will assist in the avoidance of a hitherto unsuspected menace; persons who eat but little salt are especially susceptible (*Amer. J. Psychiat.,* May).

SOCIOLOGY

By L. L. Bernard

Professor, Washington University

THE AMERICAN SOCIOLOGICAL SOCIETY

Annual Program.—The 27th annual program of the American Sociological Society was held at Cincinnati, O., Dec.28-31, 1932. The central theme for discussion was the fields and methods of sociology. Other papers reporting the results of investigation were also presented before the special sections of the Society, dealing with rural sociology, educational sociology, the family, the sociology of religion, sociology and social work, and the community. This year the president of the Society so planned the papers bearing on the general theme of the meetings as to develop the outstanding results of research touching upon the fields and the methods of research in the following recognized subdivisions of sociology: historical sociology, biological sociology, human ecology, community study, rural sociology, urban sociology, cultural and folk sociology, social psychology, social psychiatry, educational sociology, the sociology of religion, criminology, family study, social technology. The executive committee of the Society authorized the president to edit these papers in the form of a manual entitled *The Fields and Methods of Sociology* and to arrange for the commercial publication of this manual through the publishing house of Ray Long and Richard R. Smith, Inc., of New York. The presidential address by L. L. Bernard (Washington University, St. Louis) was entitled ''Sociology and the Exceptional Man,'' and it dealt with the interdependence of the personality of the researcher and his research technique. Edward Byron Reuter (State University of Iowa) was elected president for the year 1933, and Ernest W. Burgess (University of Chicago) and Floyd N. House (University of Virginia) were chosen vice presidents.

Reorganization Plans.—The strong interest in the problems of the reorganization of the society manifested last year was maintained. The elaborate report of the special committee on sociological research (Stuart A.

Rice, University of Pennsylvania, chairman) was approved only in part by the society. The constitution proposed by this committee, providing for a highly centralized executive organization and a markedly decentralized and indirect membership representation upon the governing bodies of the society, was rejected. A new constitutional committee composed of Jerome Davis (Yale), chairman, L. L. Bernard (Washington, St. Louis), E. W. Burgess (Chicago), M. C. Elmer (Pittsburgh), W. E. Gettys (Texas), C. E. Lively (Ohio State), and H. A. Miller (Bryn Mawr), was authorized and appointed. Its proposed constitution was issued as No. 3 of the *Publications of the American Sociological Society of 1933*, to be presented to the society at its December, 1933, meeting in Philadelphia. This plan stabilizes membership representation and increases membership control over executive functions. It also provides for a more effective research organization and administration preparatory for possible donations to the society for research purposes. A committee, consisting of N. L. Sims (Oberlin), chairman, Read Bain (Miami), Howard Becker (Smith), L. L. Bernard (Washington, St. Louis), and W. F. Meroney (Baylor), for the study of the question of a replanning of the editorial and publication policy of the society was also authorized and appointed.

Summer Session.—A special summer session of the society was held in coöperation with the Society for Social Research of the University of Chicago on June 26-29, 1933 because of the Century of Progress exhibition. The topics discussed were collective behavior in the depression, experimental social psychology, crime, the family, the community, rural sociology, prediction and forecasting, graphic presentation, minimum standards of training in research technique.

OTHER SOCIOLOGICAL MEETINGS

The Eastern Sociological Conference met in Philadelphia April 22-23, 1933, and discussed ''Current Developments in Sociology.'' R. M. MacIver of Columbia University was elected president for 1933-1934 and H. A. Phelps of the University of Pittsburgh secretary-treasurer.

The Pacific Sociological Society met on January 14th at Whittier College, California. The central theme of discussion was ''The Family and Juvenile Delinquency in the Light of the Present Depression.'' The officers for the year 1933-1934 are George M. Day, Occidental College, president, and Melvin Vincent, University of Southern California, secretary.

The Ohio Sociological Society met at Dennison University, Granville, O., April 22, and discussed ''Social Trends.'' Read Bain of Miami University and Alexander A. Johnson of Wooster College were elected president and secretary respectively.

The Indiana Association of Economists and Sociologists met at the State Teachers' College, Terre Haute, April 28-29, and discussed social insurance and social control. Lester M. Jones and W. A. Neiswanger of De Pauw University were chosen president and secretary respectively for the following year.

The Iowa Association of Economists and Sociologists met at Ames, March 24-25, and discussed ''Farm Relief Problems.'' E. B. Reuter of the State University and C. N. Burroughs of Simpson College were chosen president and secretary respectively for the ensuing year.

The Southwestern Social Science Association met at Dallas, April 14-15, 1933, and discussed ''Regional Development in the Southwest.'' Mapheus Smith of the University of Kansas and Alvin Good of the Western Teachers' College of Louisiana were elected president and vice president respectively of the sociological section.

SOCIOLOGICAL RESEARCH

Methodology. — According to reports on 276 current sociological research projects undertaken by members of the American Sociological Society and listed in the *American Journal of Sociology,* (November, 1933, Vol. XXXIX, pp. 376-392), interest in research methods as such exceeded interest in any particular concrete field of factual research. Forty projects, or 14 per cent of the whole number of projects, were listed in this field of methodology, covering nine subdivisions. This marked emphasis upon research techniques and methods is significant of the current trend in sociology away from the speculative toward quantitative and other rigorously controlled procedures.

Range of Specific Interests.—The next most active field of research was that of the rural community (36 projects) a fact made possible by the availability of governmental funds for the exploitation of these projects. Population and territorial groups, including demography, human geography, and human ecology ranks third, with 24 projects. Forming a group of projects with comparatively equal emphasis, are: study of the family, 18 projects; crime and delinquency, 17 projects; social adjustment and social agencies, 17 projects; educational sociology, 16 projects; social theory, 15 projects; collective behavior and social control, 14 projects; miscellaneous social problems, 14 projects. More or less minor interests in research fields were indicated by the following categories: human nature and personality, 10 projects; public opinion and the press, 9 projects; peoples and cultural groups, 8 projects; social organization and social institutions, 8 projects; dependency, 6 projects; leadership, sociology of religion, and urban sociology, each 5 projects; recreation, 4 projects; conflict and accommodation of groups and social movements each 2 projects; and social evolution, 1 project.

Centers of Research.—Referring again to the reports on current research mentioned above and supplementing these with 127 additional reports received by the author, we have a total of 403 sociological research projects recorded. New York City leads all other centers with a total of 44 projects. Chicago follows in the distance with 25 projects. Exclusive of the projects listed under the names of the universities of these two cities, the number of projects for New York was 23 and for Chicago 19. The projects by states were: New York 89, Illinois 32, Tennessee 28, Ohio 26, California 20, Connecticut and Massachusetts 19 each, Missouri and Pennsylvania 16 each, Minnesota and Nebraska 15 each, Michigan 13, North Carolina 12, Kansas 11, District of Columbia 9, Washington 6, Louisiana, Virginia and Wisconsin 5 each, Arkansas, Iowa, Maryland and North Dakota 4 each, Canada 3, Indiana, Mississippi, Rhode Island, South Dakota and Texas 2 each, Hawaii, New Hampshire, Oregon and South Carolina 1 each. Eleven projects were listed as being done abroad, four of these in the American University at Beirut, Turkey. While these reports are necessarily incomplete the ratios of distribution are probably fairly accurate.

Distribution by Universities.—Using the same sources of information, the following results were obtained as to the distribution of sociological research among the universities and colleges:* Fisk 18, Ohio State University 17, Columbia 16, Cornell and Minnesota 14 each, Buffalo and Yale 11 each, Kansas, Massachusetts Agricultural, Nebraska, North Carolina State 10 each, Washington (St. Louis) 9, Southern California 8, Michigan State 7, Chicago, Missouri, New York 6 each, Fordham, Louisiana, Michigan, Pittsburgh, Wisconsin 5 each, California (at Los Angeles), Connecticut State, Franklin and Marshall, University of Illinois, Omaha, Pennsylvania, Smith, Stanford, Virginia Agricultural, Western Reserve 4 each, Arkansas, Harvard, Johns Hopkins, McGill, Syracuse 3 each, Cincinnati, Indiana, Loyola (Chicago), Miami (Ohio), Mississippi, North Carolina, North Carolina College for Women, North Dakota, North Dakota State, Pomona, South Dakota, Vassar, Washington State 2 each, Brown, Bryn Mawr, Clemson, Dartmouth, Drake, Hastings, Iowa State, Maryland, Minnesota State Teachers College (St. Cloud), Oregon State, College of the Ozarks, Pennsylvania State, Redlands, St. Benedict's (Kansas), Southern Methodist, Temple, Texas, Virginia, Washington (Seattle), William Jewell 1 each.

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* These results are exclusive of student research in sociology, which is summarized under another heading.

Doctoral Dissertations.—Thirty-four universities and colleges report 259 doctoral dissertations in sociology in process (*Amer. Journal of Sociology*, vol. XXXIX pp. 71-84, July, 1933). These research projects are in addition to the 403 projects listed above as in process among members of the American Sociological Society and teachers and professional investigators in sociology. It is, therefore, interesting to observe that these projects classify (allowing for overlapping in two or more fields of interest) as follows: analyses of groups, 47 projects; cultural sociology, 36; social control, 32; social organization, 27; crime and delinquency, 25; educational sociology, 20; environmental conditioning, 19; personality traits and integration, 19; the family, 18; human ecology, 17; rural sociology, 17; urban sociology, 17; religion, 15; social attitudes, 13; population, 12; industrial problems, 11; methodology, 10; public opinion, 10; social unrest, 10; history of social theory, 9; immigration and nationality adjustment, 9; social work programs, 9; the Negro, 8; social conflict, 7; boys' and girls' clubs, government, recreation and leisure time, and unemployment, 6 each; social classes, the Indian, the newspaper, race, social planning, standards of living, vocational adjustment, 5 each; Jews, leadership, women, youth movements, 4 each; sex adjustment, 3; radio, sectarianism, sociology of art, 2 each; invention, movies, library service, 1 each. A total of 356 master of arts dissertations in sociology were also listed (*Amer. Journal of Sociology*, vol. XXXIX, pp. 84-102) as in process in 50 colleges and universities. Adding the number of sociological research projects derived from the four sources of information listed above a grand total of 1,018 projects of sufficient importance to deserve listing is obtained.

Major Research Projects. — Dr. Maurice Parmelee spent the year in Europe preparing a study on Bolshevism, Fascism and the Liberal Democratic State. Jerome Davis of Yale surveyed the boy scout movement in Connecticut. The Fisk University investigations in Negro culture and race relations are now in full swing. Dr. L. E. Deets of the University of South Dakota is at work on a major study of American idealistic communities. The University of Michigan studies of metropolitan areas financed by the Earhart Foundation continues. H. C. Brearley is engaged on an investigation of interracial homicide in the South. W. C. Lehmann is nearing the completion of his research on "The Social Theory of the Eighteenth Century in England." Stuart A. Queen is making an elaborate ecological, demographic, and cartological survey of St. Louis. Major race relations studies continue at Stanford University. C. T. Philblad is engaged in an intensive study of Swedish assimilation. C. M. Rosenquist and associates have completed a survey of urbanization in Texas. J. O. Hertzler's studies in ancient social theory are beginning to come to a head. E. H. Sutherland's series of crime studies, E. W. Burgess' and Jessie Bernard's development of methods of measurement of success in marriage, J. H. S. Bossard's studies in family relationships, and G. A. Lundberg's studies in recreation and leisure-time activities are progressing. Professors Waller and Cowley are undertaking an extensive study of student traditions.

EDUCATIONAL ACTIVITIES

Student Enrollment.—The increased student interest in sociology, noted in THE AMERICAN YEAR BOOK for 1932, probably due to problems incident to the depression, continues. The University of Washington reports a 30 per cent increase in registrations in sociology. Syracuse reports a marked increase in both quantity and quality. Washington University has an increase of about 100 per cent in upper class enrollments in sociology. The State College of Washington and several other institutions report increases in sociology enrollments while the general enrollments of the institutions as a whole have decreased.

Staff Changes.—Additions to the teaching staff have been made at the following colleges and universities: Buffalo, Pennsylvania State, Cincinnati, Louisiana, Stanford, Missouri, Vassar, Texas, Connecticut Agricultural. Reductions in staff have been more numerous and have occurred at Ohio State, Michigan, Illinois, South Dakota, and elsewhere.

Curriculum expansion has taken place in several institutions to meet the need of increased enrollment or of changing interest. Sociology at Louisiana State University has had a considerable expansion and is now offering graduate work leading to the Ph.D. degree. New advanced courses have been added at Ohio State, Texas, Washington (St. Louis) and elsewhere. At the University of Arkansas a new attempt is being made to educate the public in sociological matters through the state press.

Administration.—Dr. F. C. Frey has been made dean of the College of Arts and Science at Louisiana State University. Dr. John M. Gillette was offered the presidency of the University of North Dakota in May, after the resignation of President Kane, but declined the position because of his preference for teaching. Prof. Carroll D. Clark (Kansas) has been advanced to the chairmanship of his department.

PUBLIC SERVICES

An unusually large number of sociology teachers and investigators report public service contacts this year. The list includes the departments at Buffalo, reporting two such contacts: Cincinnati, 1; Columbia, 9; Connecticut State, 1; Duke, 3; Fiske, 6; Florida State, 3; Fordham, 2; Illinois, 2; Loyola (Chicago), 15; Minnesota, 19; Missouri, 5; Nebraska, 3; North Carolina State College for Women, 2; North Dakota, 2; Ohio State, 17; Omaha, 5; Pennsylvania, 15; South Dakota, 2; Syracuse, 4; Texas, 2; Vanderbilt, 7; Virginia Agricultural, 4; Washington (St. Louis), 22; Washington (Seattle), 3; Wisconsin, 1, and Yale, 4.

These public services fall under the categories of administrative, advisory, and research. They may also be classified as governmental, which are in the minority; as supplementary to social welfare activities, embracing about one-third of the total outside activities, and as scientific, the chief category. Classifying these services in terms of the size of the units involved, 59 were rendered to national, 36 to state, 6 to county, 53 to urban, and 8 to international organizations, both public and private. The 27 institutions reporting showed a total of 162 public service contacts aside from those rendered in connection with the regular employment of the teacher and researchers. This was an average of 6 for each institution and of almost three contacts for each of the 58 persons reported.

PUBLICATIONS

Social Problems.—By far the most active field of publication was that of social problems. General treatises in this field were J. M. Gillette and J. M. Reinhardt, *Current Social Problems;* J. L. Gillin, *Social Pathology;* W. F. Ogburn (ed.), *Recent Social Trends,* and H. A. Phelps, *Contemporary Social Problems.* Industrial social problems claimed a larger attention than any other aspect of social problems as shown by the following titles: E. W. Bakke, *The Unemployed Man, a Social Study;* H. P. Fairchild, *Profits or Prosperity?;* Mary E. Johnson, Helen Belknap, and D. G. Haring, *Emergency Employment;* C. A. Kulp, *Social Insurance;* Lewis Mumford, *Mechanics and Civilization;* Maurice Taylor, *The Social Cost of Industrial Insurance;* A. J. Todd, *Industry and Society;* Harry F. Ward, *In Place of Profit;* J. M. Williams, *Human Aspects of Unemployment and Relief,* and Wolman and Peck, *Labor in the National Life.*

Criminology and Social Control.—The problem of crime and its control was well represented with the following titles: C. N. Burroughs, *Criminal Statistics in Iowa;* Sheldon Glueck (ed.), *Probation and Criminal Justice;* Frank Harris, *Presentation of Crime in Newspapers;* F. W. Hoffer, D. M. Mann, and F. N. House, *The Jails of Virginia;* E. D. Monachesi, *Prediction Factors in Probation;* A. F. Raper, *The Tragedy of Lynching;* Florence M. Warner, *Juvenile Detention in the United States;* W. A. White, *Crime and Criminals.* The general field of social control also received generous treatment in L. M. Bristol, *Guide to the Laws of Florida Applying to Child Welfare* and *Social Legislation in Florida;* E. T. Devine, *Progressive Social Action;* Clifford Kirkpatrick, *Attitudes and Habits of Radio Listeners;* F. E. Lumley, *The Propaganda Menace;* Bessie A. McClenahan, *Social Case Work: Theory and Practice;* J. A. Neprash, *The Brookhart Campaigns in Iowa,* 1920-1926; Jeremiah Shalloo, *The Private Police in Pennsylvania;* J. H. Tufts, *America's Social Morality;* M. M. Willey, *Communication Agencies and Social Life.*

Minor Social Problems. — Other types of social problems also received attention. The Negro and race problems were treated in C. S. Johnson, *The Economic Status of the Negro;* C. S. Johnson and W. D. Weatherford, *Social Aspects of Race Relations;* B. E. Mays and J. W. Nicholson, *The Negro's Church,* and T. J. Woofter, Jr., *Races and Ethnic Groups in American Life.* The family was treated by E. R. Groves in *Marriage* and in *The Family and Its Relationships.* Moral problems were attacked by Reinhold Niebuhr in *Moral Men and Immoral Society* and by W. C. Reckless in *Vice in Chicago.* Leisure time activities were investigated by G. A. Lundberg in *The Leisure of a People* and by J. F. Steiner in *Americans at Play.* Winnifred V. Richmond wrote *The Adolescent Boy* and L. L. and Jessie Bernard *Sociology and the Study of International Relations.*

Culture and Religion.—Cultural and folk sociology were fairly well represented in F. P. Keppel and R. L. Duffus, *The Arts and American Life;* S. H. Lowrie, *Culture Conflict in Texas,* 1821-1825; Margaret Mead, *The Changing Culture of an Indian Tribe;* M. Sherman and T. R. Henry, *Hollow Folk;* Hutton Webster, *Primitive Secret Societies* (rev. ed.), and Sanford Winston, *Culture and Social Behavior.* In the field of religious culture three volumes deserve mention: Theodore Abel, *Protestant Home Missions to Catholic Immigrants;* Roy H. Abrams, *Preachers Present Arms,* and Abraham Cronbach, *Religion and Its Social Setting.*

Sociological Theory. — This year broke the record for the publication of general treatises on sociology, with the following titles: L. L. Bernard (ed.), *The Fields and Methods of Sociology;* E. S. Bogardus (ed.), *Social Problems and Social Processes;* C. H. Cooley, R. C. Angell, and L. J. Carr, *Introductory Sociology;* E. T. Hiller, *Principles of Sociology;* L. J. Osborn and M. H. Neumeyer, *The Community and Society;* J. M. Reinhardt and G. R. Davies, *Principles and Methods of Sociology;* E. B. Reuter and C. W. Hart, *Introduction to Sociology;* E. A. Ross, *Outlines of Sociology* (rev. ed.), and W. D. and G. A. Wallis, *Our Social World.* Educational sociology had six titles to its credit: H. M. Bond, *Education of the Negro in the American Social Order;* C. R. Judd, *Problems of Education in the United States;* Elsa P. Kimball, *Sociology and Education;* Ruth Kotinsky, *Adult Education and the Social Scene;* B. Y. Landis and J. D. Willard, *Rural Adult Education,* and C. H. Peake, *Nationalism and Education in Modern China.*

Special Aspects of Social Theory.—Population study was represented by Day Monroe, *Chicago Families,* and W. S. Thompson and P. K. Whelpton, *Population Trends in the United States.* Rural sociology produced E. deS. Brunner and J. H. Kolb, *Rural Social Trends* and C. E. Lively, *Readings in Rural Sociology.* Urban sociology likewise produced two titles: R. D. McKenzie, *The Metropolitan Community,* and T. Earl Sullenger, *Studies in Urban Sociology.* Social psychology was more prolific, with: F. H. Allport, *Institutional Behavior;* Charles Bennett, *Scientific Salesmanship;* R. C. Davis, *Ability in Social and Racial Classes,* and Laurence Sears, *Responsibility.* The two titles in methodology are C. A. Ellwood, *Methods in Sociology: A Critical Study* and R. Clyde White, *Social Statistics.* Flora M. Thurston prepared *A Bibliography on Family Relationships.*

ANTHROPOLOGY AND ETHNOLOGY

By Charlotte D. Gower

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ANTHROPOLOGICAL EXHIBITS

A Century of Progress Exposition.—The temporary exhibits relative to anthropology included a replica of a part of the Nunnery at Uxmal, and a series of displays in the Hall of the Social Sciences relative to archeology and physical anthropology.

The Field Museum of Natural History opened two new permanent exhibits to the public. In the "Hall of the Stone Age of the Old World" a series of dioramas presents in chronological order scenes from the life of early man in Europe. The figures are life-size reconstructions based on the human fossils of the period; the activities represented are those indicated by the archeological finds; the backgrounds are painstaking reproductions of definite sites where evidences of occupation have been observed. The periods represented are the Chellean, Mousterian, Aurignacian, Solutrean, Magdalenian, Mesolithic, and Neolithic, including both the lake-dwellings of Switzerland and the megalithic monuments of Brittany. In the "Hall of the Races of Mankind" are 87 life-size bronze sculptures, the work of Malvina Hoffman, representing typical representatives of the more important divisions of the human race. Not only have the physical proportions been faithfully reproduced, but each figure has been shown in a characteristic and natural pose. The various types are arranged by continent.

ETHNOLOGY

Acculturation.—Monica Hunter has studied the effect of contact with Europeans on the status of Pondo women. New opportunities have been opened up which make women self-supporting and more independent. They tend to marry later, and unmarried daughters take on an enhanced importance. The bride-price has been retained but is paid in money rather than in goods. The individual family has become the important basic unit rather than the group of twenty families. This means that among married women the younger ones are more independent in that they are no longer subordinated to the older women of the group. Among the Maya in Yucatan Dr. Robert Redfield has observed a diminished importance of religious beliefs and rites among town-dwellers. In the rural districts the hazards attendant on agricultural pursuits seem to maintain the importance of drought and harvest ceremonies. On the other hand, sorcery is more prevalent in the city than in the country village. It seems to increase where there is an advance in social grading and in communities where contacts with strangers are frequent.

ARCHEOLOGY IN NORTH AMERICA

Mexico.—Investigations carried on at Calakmul by a party under the direction of Dr. Sylvanus Morley revealed 41 more stelae, which makes the total for this recently discovered site 103. While the sculpture on the monuments is provincial in type, the quantity is unequalled in any other Maya city. Forty-two of the 51 Initial Series found were deciphered, and the dates indicated that this city flourished from the close of the Early Period throughout the Great Period of Maya culture. In position and time Calakmul bridges the gap between the early cities of northern Guatemala and the later sites of northern Yucatan. Other discoveries at Calakmul include a sculptured limestone outcrop, and an ancient quarry. Along the southwest edge of Calakmul lake there was found a sculptured wall measuring ninety feet in length, three in thickness, and twenty feet in height. Explorations in the region revealed eleven more sites of ruins. A preliminary investigation of the nearby city of Nohoxna brought to light three temples, a castillo, and nine stelae. In the city of Mexico excavations have uncovered the cornice of a building which resembles nothing so much as the Maya temple of Kulkulkan at Chichen Itza. Such a find is entirely contrary to expectations, and if further investigations demonstrate the Mayan affinities of this temple, changes must be made in the present theories of Mexican archeology. J. Eric Thompson of the Field Museum of Natural History, Chicago, reports the identification of the Mayan hieroglyph denoting fifteen tuns, or approximately fifteen years. In Chihuahua, Dr. E. B. Sayles of Globe, Arizona, found a type of buff pottery with red designs which is unlike any of the known types from either the Mexican cultures to the south or the Pueblos of the southwestern United States.

Texas.—Cave excavations in the Big Bend region of the Pecos river have been carried on independently by Dr. Frank Setzler of the U. S. National Museum and A. T. Jackson of the University of Texas. No signs of pottery, agriculture, or European influence have been found. The artifacts indicate certain relationships of this ''Big Bend cave culture'' to the Late Basketmakers of the Southwest, on one hand, and to the Central Texas mound culture, on the other.

Folsom Points.—The present status of knowledge concerning Folsom type dart points has been summarized by Jack Cotter, a student at the University of Denver. Three hundred and forty-three of these points, of a type which cannot be associated with any of the historical Indian tribes, have been reported from thirty different states. Not infrequently they are discovered in association with the bones of extinct animals. The widespread distribution of these implements, from New Hampshire to Oregon and from North Dakota to Louisiana, is interpreted by Cotter as an indication that the makers of these points, ancient as they were, were not themselves newcomers to America.

Mound Area.—Basing his opinions on a study of pollen grains and other plant remains preserved in peat bogs, Prof. Paul B. Sears suggests that the Ohio mounds were constructed by groups of agricultural Indians who migrated into the region from the west at a period when a warm dry climatic phase caused prairie grasses to invade the eastern forests. A return of damper conditions caused a new growth of forest, and the corn-raising, buffalo-hunting tribes were again driven west, giving place to the hunting peoples who were occupying Ohio when the white man arrived.

EUROPE

England.—In connection with the excavation of an Early Bronze Age site near Ely, under the auspices of the Fenland Research Committee, a pollen analysis was made of the various levels in the peat. In the lowest level Dr. and Mrs. M. E. Godwin found alder to be present but showing less frequency than pine and hazel. In an upper level the alder was predominant but near the top it again was overshadowed by other plants. The middle period was apparently one of great wetness. This succession of climate phases indicates a sub-Boreal date for the occupation of the site which must have been a dry island in a shallow peat-forming swamp. In the site itself a succession of cultures was found: — Tardenoisian flints, Beaker ware of the Early Bronze Age, and a later buff pottery that was poorly fired. Grahame Clark's study of the archeological data showed a complete absence of polished stone axes and leaf-shaped arrow heads. The study of the mammalian fauna by Dr. Wilfrid Jackson revealed only domesticated animals. Remains of the dog and horse were lacking. Examination of invertebrate forms by Dr. W. H. Macfadyen and A. S. Kennard showed that during the Tardenoisian occupation the land level was higher than at present. This phase was followed by the Atlantic depression, after which the land rose again and the Bronze Age peoples came in.

Wales.—A circle of wooden posts or ''Woodhenge'' at Caebetin on the Kerry Hills, Montgomeryshire, was excavated by Noel Jerman of the University of Wales and R. U. Sayce of Oxford University. The pottery found indicates a Middle Bronze Age date. The diameter of the circle was nineteen feet.

AFRICA

Origin of Man.—In Tanganyika Territory Dr. L. S. B. Leakey discovered skeletal remains of modern type in Early Pleistocene deposits. At Kanam a lower jaw was found in association with a pebble industry which antedates Chellean in that region. It resembles closely the jaw of a modern man, although the pulp cavity of the lower right first molar is of considerable size. At Kandjera skulls were found showing general conformity to the *Homo sapiens* type, with no heavy frontal torus. In one of the specimens the bones were of unusual thickness. The associated implements were Chellean in type. At a conference of the Royal Anthropological Institute special committees were appointed to consider the problem of the age of these finds. Both were declared to have been found *in situ* and of the same age as the deposits in which they were found. That at Kanam was assigned to the lower *Pleistocene,* and the Kandjera deposits to the Middle *Pleistocene.* These are the most ancient fossils of *Homo sapiens.*

South Africa.—In the Cape St. Blaize cave at Mossel Bay John Goodwin found evidence of the contemporaneity of the Mossel Bay and Howieson's Port industries. Mossel Bay types were also found in the remains of the twenty-foot beach in this same locality. Thus far geologists have been unable to assign a date to this beach. At Fish Hoek there is evidence that the Still Bay culture belongs to this same period.

PALESTINE

Pleistocene Man.—Dorothy Garrod, continuing excavations in Athlit cave for the British School of Archeology in Jerusalem and the American School of Prehistoric Research, discovered another skeleton of the *Palaeanthropus palestinus* type in association with an industry of combined Mousterian, Levalloisian, and Still Bay facies. The lower jaw was massive, but showed a fairly well-developed chin. Faunal associations in this layer were the hippopotamus and rhinoceros. In a lower level elephant bones were associated with implements of early Mousterian or Acheulian type. Evidence points to an interglacial date for this lowest stratum. Rock drawings are reported by Renê Neville from a cave at Umm Qatafa near Bethlehem, and by George Horsfield, Director of Antiquities of Transjordan, from the Jebel Tubaiq near the Hedjaz frontier. The latter series dates from either the *Paleolithic* or the *Neolithic* period, and occurs in the open. The figures were pecked into the hard smooth surfaces of a sandstone hill.

Gaza.—Sir Flinders Petrie, excavating for the British School of Egyptian Archeology, found torque earrings made of Irish gold in a deposit dating from 1500 B. C. Examples of granular gold work of the type which was common in Etruria at a later time were found in deposits of the Hyksos period. The region was invaded in 3200 B. C. by peoples whose route from the north is indicated by the discovery of bronze daggers of a type hitherto found only in the Caucasus.

Tell Duweir.—The 38 feet of deposits which have been excavated at Tell Duweir, the ancient city of Lachish, by the Wellcome-Colt Archeological Expedition under J. L. Starckey, date from the earliest Bronze Age. The lower deposits contain black burnished pottery of the early Canaanite culture. In the upper levels are remains of the Hyksos period, and the Middle and Late Bronze Ages. In the deposits which represent the period of the Jewish exile in Babylon there appears to be no break in the occupation of Lachish, which indicates that the number of Jews deported by Nebuchadnezzar could not have been very great.

MESOPOTAMIA

Arpachiya.—At Arpachiya, in northern Mesopotamia, a joint expedition of the British Museum and the British School of Archeology in Iraq, under the direction of E. L. Mallowan, put in a first season's excavation on a mound made up of ten superimposed settlements. The four most recent settlements had been villages of mud huts, with pottery similar to that of the earliest sites in southern Mesopotamia. The site was abandoned before the beginning of the historic period, probably not later than 4000 B. C. In the sixth village, at a depth of twenty feet, there were signs of an attack by invaders who smashed pottery and destroyed the town. This pottery was painted in three colors and shows, as does all of the pottery of the lower levels, affinities to that of the northern sites of Tell Halaf and Sammarra. Mother goddess figurines in clay and stone were found as well as bowls of Mosul marble and amulets in the form of the double ax which appears in Crete after 3000 B. C. In the seventh town were circular vaulted rooms like the beehive tombs of Crete. In one of the earlier villages was found the most ancient wheat ever discovered in Mesopotamia. In these settlements there are evidences of reed huts and pebble roads.

Khorsabad.—In the temple of Nabu at Khorsabad, one of the expeditions of the Oriental Institute of the University of Chicago found a tablet recording the names and the length of the reigns of the Kings of Assyria from the third millennium until the eighth century before Christ. The record includes the names of kings hitherto unknown, and the accounts of certain historical events during the period.

Tell Asmar.—The Iraq expedition from the Oriental Institute found a cache of copper objects containing one bladeless dagger handle. On examination this socket showed a fragment of the original iron blade, most of which had decomposed. The iron contained no nickel, and therefore was not of meteoric origin. This blade is 1,000 years older than the oldest piece of worked iron known previous to this discovery. It dates from about 2700 B. C. At the same site are found evidences of contact with the early civilization of the Indus valley and with predynastic Egypt. In a level which the use of plano-convex bricks shows to be contemporaneous with the tombs at Ur, the arch is found in use in domestic architecture. In the shrine of the god of vegetation, Tammuz, were found seal carvings which show the naked god attacking a seven-headed dragon. This indicates an Oriental origin for the Hercules myth. Certain of the later houses at Tell Asmar contain lavatories with brick drains.

Gerwan.—An Oriental Institute expedition observed an acqueduct of ashlar masonry forming part of a canal thirty miles in length which King Sennacherib built to bring water from the Barian mountains to Nineveh. The acqueduct is 900 feet in length, and 75 feet wide. Where it crosses a stream it is supported by five pointed arches of a nine-foot span.

PERSIA

Tepe Hissar.—Three periods of occupation dating from 4000 to 1600 B. C. have been discovered at Tepe Hissar by the joint expedition of the University Museum and the Pennsylvania Museum of Art of Philadelphia, assisted by the American Institute for Persian Art and Archeology. The expedition is under the direction of Dr. Eric Schmidt. The earliest settlement, Hissar I, was surrounded by a wall of mud brick. The pottery of the period was painted but was neither so thin nor so beautiful as that of Susa I. Definite evidences of cultural relations with Elam and Susa are present. In deposits of the second period (3000-2000 B. C.) the pottery was of polished grey ware, as at Atterabad, with some painted ware still present. In the last period the painted ware was no longer made, and there were many vessels of silver, lead, gold, copper, and alabaster. Hissar III was burned and, among the thousand skeletons found, many were of mongoloid type.

Persepolis.—Prof. Ernst Herzfeld, leading the Oriental Institute expedition to Persia, excavated the terrace on which stood the palaces of Darius, Xerxes, and Artaxeres. Among the discoveries were beautiful relief sculptures showing representatives of subject nations bringing tribute to the Persian court. No trace of Greek influence was to be observed in the art. A charcoal layer bears witness to the fire started by Alexander which destroyed the city.

MENTAL TESTS

By Martin L. Reymert

Director, The Mooseheart Laboratory for Child Research

NEW TESTS

New tests for various purposes and various age levels have appeared, and the tendency to a re-evaluation of method and technique has continued to manifest itself. Skeels in a University of Iowa monograph presents a study of some factors in formboard accomplishments of pre-school children, devising a series of formboard tests for pre-school children. Form B of the Minnesota Pre-school Scale has been published. Bayley has published the California First-Year Mental Scale. Henmon and Nelson have published a new teachers manual for their tests of mental ability for grades 3-8 and for grades 7-12. Drake has devised four new tests of musical talent consisting of musical memory, interval discrimination, retentivity of "elemental factors of melody" and intuition, which might be administered to groups. Arthur, through the Commonwealth Fund, has published the second volume about a point scale of performance tests. Beckman has revised the ascendance-submission test for business use. Porteus has published in book form a revision of his maze test with reference to mental defectives, applicability in the study of race differences, etc.

NATURE OF INTELLIGENCE

Perhaps the greatest step forward in the general field of tests to be noted during the year is the work of the Unitary Traits Committee organized in 1931, under the chairmanship of Prof. E. L. Thorndike with a grant from the Carnegie Corporation and with the object of trying to find the nature of intelligence. A sub-committee consisting of Spearman and Holzinger has devised and selected nearly 100 different tests which have been given to a large number of grade and high school students in Mooseheart and Chicago. A selected group of cases are being studied for 78 variables involving a complexity of analysis far beyond anything previously attempted. Hotelling helped in devising new statistical methods. Spearman has reviewed his two-factor theory in several articles in which he clears up several misconceptions of his theory and finds that it has stood the test of some thirty years of experimentation and scrutiny. Wilson discussed further theoretical and statistical considerations concerning Spearman's two-factor theory of intelligence. Line and Hedman have offered a simplified statement of the Spearman two-factor theory of intelligence for those unacquainted with higher mathematics. L. W. Jones gives an outline of present-day theories of factors, discussing the Spearman theory of intelligence. Thurstone has published a supplement to his previous monograph on the theory of multiple factors, substituting a "center of gravity" method for the least square method, with the saving of a great deal of labor.

DIFFERENT TECHNICAL AND THEORETICAL ASPECTS

Holzinger and Swineford have given an annotated bibliography on statistics and the theory of test construction. M. Smith has published some notes on the stability in questionnaire response to 60 items. About one-fourth of the items were answered differently on two trials, the greatest change being on subjective personal items, the least on factual personal items. A superior stability of girls was found to be almost perfectly reliable. Cavan also tested the questionnaire within a sociological research project, having 123 eight-grade children answer it twice with a week's interval, etc. The percentages of agreement varied 97.5

for factual questions about self to 78.1 on questions on attitudes towards self. No appreciative difference in percentage of agreement was found between boys and girls. Kruger compares the distributions of scores based on correct guessing for true-false tests of various lengths, finding that, by the use of tests varying from 10 to 500 items in length, chance guessing may often yield very high or very low scores in short tests but that this probability is almost eliminated in the longer tests. Hilden has published a table of Heinis Personal Constant Values which is a completion and extension of Heinis' briefer tables. Cureton gives a consideration of the problems which arose in attempting to validate a battery of tests against the criterion of success in college. Brownell reports on the accuracy with which reliability may be measured by correlating test halves, and he seemed to obtain evidence to show that considerable caution should be exercised in the determination of the reliability of short objective tests through the correlation of test halves. Lincoln maintains that his critics have stated only why the difficulty with reliability coefficients occurs but that they have not explained it away. Horst offers a formula for determining the difficulty of a test item in terms of its standard deviation. Shuey has given a re-interpretation of the Rorschach test, claiming that it shows the degree of differentiation of the perceptual processes of the individual. Tryon and Jones gave various speed tests under conditions which involved the exposure on a screen of simple narrative material and found that in a group of 116 college students mental ability was not contingent on the speed of mental processes. Beck has reviewed 34 articles in regard to the role of speed in intelligence and correlates intelligence test scores in fourteen studies with simple and compound reaction, finding a wide range of correlations from —.32 to .90. Lambeth and Lanier analyzed the possible racial differences in regard to speed of reaction, using thirty white and thirty negro twelve-year-old boys and found that the theory of a general speed difference between races is untenable. Caldwell has completed a study of speed as a factor with children of superior and inferior intelligence. Lindquist and Cook have demonstrated the application of new experimental procedures for controlling the time factor in test evaluation.

CONSTANCY OF THE INTELLIGENCE QUOTIENT

The intelligence quotient (I.Q.) has received much attention. Nemzek has reviewed 247 titles on the problem of the constancy of the intelligence quotient, seemingly showing a high constancy of the reliabilities of re-testing falling between .75 and .95. Gildea and Macoubrey have related facts about the factors affecting the constancy of the intelligence quotients of 431 white problem children. Seventy-seven were found whose IQ changed more than 10 points on a second testing, and improvement in physical condition, parental attitudes, etc., seems definitely associated with variability in IQ. R. L. Thorndike has recently reviewed the effect of the interval between test and re-test on the constancy of the IQ and finds that the correlation between Binet test and re-test falls off as the interval between tests is increased. P. Cattell has tried to find out whether the Stanford-Binet IQs of superior boys and girls tend to decrease or increase with age, using 288 cases and finding that there is an increase in the IQ of the superior children with increase in age. Cattell also relates that the Heinis personal constant is more constant than the IQ for children below average in intelligence but that for children above average intelligence it is less constant than the IQ. W. S. Miller discusses the variation of IQs obtained from group tests of intelligence. During the year Wellman reports more findings on changes in IQs showing that children not attending pre-schools do not gain in IQ from fall to spring. Lincoln gives a preliminary report on the

Stanford-Binet IQ changes of superior children finding that in general the superior children are likely to lose rather than gain and that, on the average, the girls are likely to lose more than the boys. Stoke offers data from 140 children from the Harvard Growth Study on the number of successes with each of the individual tests on the Stanford-Binet Scale in years 6-9. Louden presents some data on the relative difficulty of vocabulary lists in the Stanford-Binet Scale.

SOME CONTRIBUTIONS TO EVALUATIONS OF TESTS

Reymert and Hartman have presented the first study of a qualitative and quantitative analysis of a mental test, using the Knox Cube Test. The study presents for the first time a method for evaluation of the highly important qualitative differences which will never come out in the quantitative scores alone. Bernreuter has furnished data on the validity of the personality inventory finding that scores are not due to chance, that they are not invalidated by a tendency to give answers assumed to be socially approved, and that they are not warped by the subject's desire to be other than he really is. Turney and Fee administered five group mental tests endeavoring to find the comparative value for junior high school use and found the Otis Self-Administering (intermediate), the Terman Group, and Haggerty Delta 2 of almost equal value for this purpose, while the National and McCall Multi-Mental are of much less value. Stoddard reports that a comparison of the Kuhlmann and Stanford Revisions with a new Merrill-Palmer test appears to favor definitely the usage of the older tests and that the Drawing-of-a-Man test appears to be a useful addition to Binet testing. Beck reports a study of a closer analysis of the Rorschach tests in relation to configurational tendencies and Gestalt theory. Durrell has investigated the influence of reading ability on intelligence measures and finds that some group intelligence tests containing many reading items should be more properly labelled reading tests. Carroll has tried to find the value of the Meier-Seashore and the McAdory art tests, finding the results of neither of these two tests correlate with the judgment of university art instructors.

USE OF TESTS FOR STUDYING SPECIAL GROUPS

Wolcott gave the Thorndike Intelligence Test to about 200 Mills College students on entering college and again after 3½ years and finds a correlation between test and re-test scores of .809. Baldwin in a monograph presents an analysis of the maturation of college students as evidenced by retests with the American College of Education tests and finds that the ability on the whole increases throughout college years with a slump at the sophomore year. Flemming applied the Pressy X-O test for emotional responses to college sophomores and found in general the test to be quite reliable with no apparent sex difference. Sorenson has applied the Minnesota College Aptitude Test to 5,500 extension students of the university, finding that extension students have an ability that is virtually equivalent to the ability of College of Education juniors and seniors. Hunsicker has compared the scores on two college freshmen intelligence tests. Nemzek has applied a number of tests at the college level and presents the data from the various tests without comment. Waits has endeavored to find the differential predictive value of the Psychological Examination of the American Council on Education for differentiating between the chances of success in the different divisions of college, and finds in general that there is not sufficient difference in the weights of sub-tests for any prediction of success in regard to engineering, agriculture, and general. The College Entrance Examination Board reports having given scholastic aptitude tests to 8,894 candidates for entrance to various colleges and universities. Kansas State Teachers College continues its work with the nation-wide Every Pupil Scholarship test, about 1,000,000 students having been tested in some forty states. Pintner has published a comparison of interests, abilities, and attitudes of 187 students and verifies earlier studies, finding the men higher than the women in theoretical, economic, and political interests, and finding the women higher than the men in aesthetic, social and religious interests. Barden has studied the predictive value of the Stenquist Mechanical Aptitude Test, using shop grades received in the senior high school as criteria and finds that the Stenquist scores have very little predictive value but that the achievement in mathematics has a rather high value. Jordan has investigated parental occupations and children's intelligence scores and finds, in general, that the higher the occupational level of the parents, the higher the IQ of the children. Pintner and Forlano have discussed the influence of month of birth on intelligence quotients, using 17,502 IQs. Stanton and Koerth have published data on musical capacity measures of children repeated after musical training and find, in general, that the Seashore measurements remain constant and reliable from ten years until adulthood. Nilson has published a study of certain intelligence aspects of a group of physically disabled pupils in Minnesota public schools. Arthur discusses the prediction value of the Kuhlmann-Binet Scale for inmates of a state school for the feebleminded based on tests of 646 cases. Bradbury has applied the Descoeudres performance test to 57 American-born four- and five-year-old children. Bregman has published the results of performance of student nurses on tests of intelligence.

Maturity studies continue to appear in this field. W. R. Miles has given further reports on the Stanford Later Maturity Study in which the following functions were tested by individual tests on age groups of from ten to eighty-nine years: visual acuity declines consistently from 100 in the teens to 46 in old age, while perceptual span rises to late adolescence, then declines slightly to 60 and rapidly thereafter; motor abilities decline to about 70 per cent of the maximum in the 18-29 period, declining at 55; imagination, as tested by Rorschach figures, is relatively stable; comparison and judgment decline very slightly; combination and abstraction as found in intelligence tests show more decline in speed of response than in accuracy. The abilities which are mostly of a physiological nature seem to decline most and mature the earliest. Jones and Conrad report a study on the growth and decline of intelligence on a group between the ages of 10 and 60 from a community survey conducted on the native-born population in 19 villages of three eastern states. Army Alpha tests were administered to 1,191 subjects and it was found that general intelligence follows linear growth to about 16 years, with a negative acceleration beyond 16 to a peak between the ages of 18 and 21. A decline follows which is much more gradual than the curve of growth but which by the age of 55 involves a recession to the 14-year level. Conrad Jones, and Hsiao applied the Army Alpha Test to 581 males and 607 females in a rural group between the ages of 10 and 60, finding a general slight superiority of females to males which is greater during early adolescence but no age was sufficiently marked to be of great practical significance. The results vary quite a little for the various tests.

NEW BOOKS AND GENERAL REVIEWS

The study of mental tests, their technique and application to practical problems produced a large literature in 1933. The Office of Education, U. S. Department of Interior has published a very comprehensive monograph, *Provisions for Individual Difference, Marking and Promotion* analyzing existing literature on individual differences and showing the current practices of educational procedure based on such differences Hildreth, with the Psychological Corporation, has published a complete bibliography of about 3,000 tests and rating scales which have appeared during the past thirty years, and which includes tests of mental capacity, performance tests, psychomotor tests, achievement and educational tests, character and personality tests, vocational tests, etc. Pintner reviews 237 selected contributions in the mental test field for 1931 and 1932. Watson has reviewed some 300 contributions in the field of character and personality tests during the past two years. Garrett and Schneck have published a book on psychological tests, methods, and results, intended to serve both as a textbook and as a laboratory manual in courses in psychological tests. Lee and Symonds have given a summary review of recent investigations of new-type or objective tests, with special reference to educational tests. Sherman and Henry in their book, *Hollow Folk,* compare intelligence and personality to cultural background. Woody and Sangren have published a book of general directions for administration of the testing program in schools.

CHARACTER AND PERSONALITY

By A. A. Roback

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SCOPE OF THE STUDY

The segregation of character and personality from the general rubric of psychology and its independent treatment in the American Year Book could have been foretold from the vast interest centering around this twin subject, making the material too unwieldy for incorporation in the survey of psychology, where it would have been lost in the ruck of data and experimental discussions. The study of personality no longer concerns psychology alone. It is not only a synthesis of psychological components but reaches out far into the realms of psychiatry, constitutional and clinical morphology, typology and sociology. The study of personality alone comprises different fields and can no longer be envisaged as a mere department of psychology, like imagination or memory.

A NEW PERIODICAL

As in the case of every innovation, it is difficult to say just why we begin where we begin. The present survey should really cover the period of a whole decade, but space restrictions compel the reviewer to make his departure from the fall of 1932, when the first number of *Character and Personality* appeared, crystallizing the various endeavors in this field on the part of many investigators from various countries. This journal, published at Duke University, although edited in London, by the graphologist Robert Saudek, has done much not only to gather under one roof, so to speak, psychologists of diverse schools but to foster an interest in personality problems among those whose activities were centered in other fields. In *Character and Personality,* which has the largest circulation of scientific psychological periodicals, personality is treated from various angles. The mechanistic approach alone, perhaps, is missing.

PSYCHODIAGNOSTICS

Three lines of inquiry have been initiated in this quarterly. First of all the territory of psychodiagnostics is cultivated both from the avenues of graphology and of morphology. Academic psychology has hitherto looked with misgiving at any effort to delineate character or personality traits from any external manifestations, making some concession only in the case of tests. The case for graphology has recently been strengthened as a result of expressions by academic men who are not *ab initio* biased against it.

ROLE OF EXPERIMENT

The second line of attack carried out in *Character and Personality* touches the rôle of the experiment in affording us psychological results. In the symposium arranged by the editor, Wm. McDougall, Hans Driesch, Ernst Kretschmer and Alfred Adler were among those who participated. The general conclusion, well brought out by Prof. G. W. Allport, was that the experiment is not the exclusive means of studying the higher mental syntheses, but that a great many aspects of personality are accessible to the experimental method, provided the investigator escape the limitations of the strict laboratory tradition.

HEREDITY

The perennial question of heredity and instinct has been broached in the same periodical from a new vantage ground. Seeman and Saudek have examined the handwriting of identical twins reared apart. R. W. G. Hingston has written on ''Instinct and Intelligence in Insects'', and Otto Verschuer has discussed ''Heredity as Applied to Psychic Properties.''

GENERAL PUBLICATIONS

The number of books bearing titles with the word ''personality'' in them is increasing, an indication that the term possesses some sales value. Not all the books so labelled are really books on personality. There is M. B. Greenbie's *Personality* (Macmillan), a collection of excellent essays on love and life from the standpoint of a cultured woman, but with little bearing, if any, on the psychological problems involved. Even Murphy and Jensen's *Approaches to Personality* (Coward-McCann), is really an account of the various contemporary schools in psychology rather than a treatise on personality. In *Personality, Many in One* (Stratford), J. W. Bridges presents a rather eclectic view with a slight bias toward the mechanistic position. S. Myers Shellow's *How to Develop Your Personality* is a popular *omnium gatherum* of psychology with some chapters on personality. Percival M. Symonds' *Diagnosing Personality and Conduct* (Century, 1931), is the most extensive account thus far of the experimental work in personality, including a discussion of statistics relative to the tests. The most recent volume on personality is M. H. Krout's *Major Aspects of Personality* (College Press), which treats the subject from both a psychoanalytic and sociological angle. H. Hartshorne in his *Character in Human Relations* (Scribner's), after outlining the various types of characterology makes a number of suggestions, based on an extensive investigation, relative to character-building in children.

REVIEWS AND SUMMARIES

It would be impossible even within the range of a considerably longer survey to list and describe all the researches and tests which have appeared lately in the field of character and personality. The bibliography on this subject is immense. There are bibliographies published in a number of periodicals, both overlapping and supplementing Roback's *Bibliography of Character and Personality,* which appeared in 1927. Most of these bibliographies are preceded by classified summaries. LaBerta A. Weiss has a general review of rating scales (*Psychol. Bull.*, March, 1933). Goodwin Watson summarizes the work on character and personality tests for the last two years (*Psychol. Bull.*, July 1933), listing 189 studies. In the *Review of Educational Research* (June, 1932) the same author presents a comprehensive survey of tests in personality for a longer period. J. B. Maller (*Psychol. Bull.*, March, 1933), examines the investigations on character and personality in German psychological literature under six main headings and a score of subheadings. It is evident that we are still in a period of mining and prospecting, cataloguing and inventorying. During the years 1932 and 1933 particularly, the personality testers have been marking time, possibly for one reason that the funds for research have been limited.

PERSONALITY TESTS

The status of personality testing has not changed since 1931, except, i anything, that there is a more critical attitude towards the methods of procedure in devising tests and a somewhat skeptical slant on present day testing. The schedules and tests which have been most discussed in the past year or so are: G. W. Allport and P. E. Vernon's *A Study of Values,* which is an attempt to place Spranger's theoretical six types into an experimental framework; the Rorschach test, as applied to various forms of deficiency and delinquency; Bernreuter's *Personality Inventory;* and the Thurstone *Personality Schedule.*

ATTITUDES

The measurement of attitudes has become a clearing ground for social psychology and the psychology of personality. The Report on *Students' Attitudes* by D. Katz, F. H. Allport and M. B. Jenness is a detailed survey, comprising over 400 pages. Droba has studied various phases of the same problem. Political opinions, belief in God, racial attitudes, the stand on pacificism and war have all been probed mainly through the questionnaire method. The monograph "General and Specific Attitudes" by Hadley Cantril (*Psychological Monographs,* No. 192), deals with the relation between general determining tendencies and more specific attitudes or contents in life.

INTERESTS

Although the psychology of interests was initiated about fifteen years ago, there has been a lag in this subject since 1931, after the publication of D. Fryer's *The Measurement of Interest in Relation to Human Adjustment* (Holt), and E. K. Strong's *Change of Interest With Age* (Stanford), which cannot be explained by the economic situation alone. Evidently this line of investigation is more important for the field of vocational guidance and pedagogy, in an applied sense, than for the study of character and personality as such. Considerable overlapping and the difficulty of separating the variables so as to determine what is being tested have made some investigators cautious about undertaking experimentation in this sector of personality.

TYPOLOGY

Surprisingly little has appeared in this country within the last year on the subject of human types. In the journal, *Character and Personality,* a few articles bearing on typology may be found, but they are not by American writers. The psychiatric approach *via* clinical morphology and constitutional studies, occasionally made use of by neurologists, and psychiatrists is partly a typological approach of course.

THE SPECIFICITY ISSUE

The most discussed issue in the field of personality testing is undoubtedly that of specificity *vs.* generality, an issue which has at its root the Thorndike-Spearman controversy of multimodal *vs.* unimodal mentality. The challenge for specificity was laid down in the three volumes by Hartshorne and May (formerly of Teachers College, Columbia), on the organization of character, which constituted the report of the character education inquiry upon which the authors were engaged for five years. These investigators maintain that there are no general traits like honesty, neatness, etc. but specific habits which hold under certain circumstances and not under others. To this view, there has of late arisen a good deal of opposition. Allport and Vernon, in their *Studies in Expressive Movement* (Macmillan), have found a high correlation of internal consistency in personal expressive movements. Goodwin Watson in "Next Steps in Personality" (*Character and Personality,* vol. II, No. 1, 1933) believes that Hartshorne and May have obtained their specific results because they did not control their situation psychologically, while A. A. Roback in an extensive critique of the Character Education Inquiry and similar investigations (*Character and Personality,* vol. I, No. 4, 1933), pointed out the methodological flaws which brought about results favoring the specificity theory.

MODIFIABILITY OF PERSONALITY

The question of how easily an individual can change his personality is discussed by E. Kahn and L. H. Cohen in "The Potentiality for Change in Personality" (*American Journal of Psychiatry,* 1933, Vol. XII) where it is assumed that every individual possesses a specific constitutional changeability index which enables him to cope with environmental influences. These latter factors in themselves are not so important as the original constitutional nature.

CHARACTER AND PERSONALITY ORGANIZATIONS

The growing interest in character and personality is evident from the formation of study circles, as in Chicago where a group of physicians, sociologists, and psychologists have arranged to meet periodically for the discussion of such problems as may come under this head; the organization of an Institute of Character Developing Forces in New England undertaken by the Boston University School of Religious Education, and similar conferences. The first conference of this Institute just mentioned, which was held April 17-22, 1933, in Boston, was addressed by bishops, governors, legislators, etc.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Anthropological Society, Inc., 11 East 45th Street, New York City.

American Genetic Assn., 306 Victor Bldg., Washington, D. C.

American Philosophical Society, 104 S. 5th Street, Philadelphia, Pa.

American Psychiatric Assn., 450 Seventh Ave., New York City.

American Psychological Assn., Univ. of Minnesota, Mineapolis, Minn.

American Psycopathological Assn., 520 Commonwealth Ave., Boston, Mass.

American Society for Psychical Research, 15 Lexington Ave., New York City.

American Sociological Society, 1126 E. 59th St., Chicago, Ill.

Encyclopedia of the Social Sciences, 100 Morningside Drive, New York City.

National Committee for Mental Hygiene, 450 Seventh Ave., New York City.

National Institute of Social Sciences, 271 Madison Ave., New York City.

Psychological Corporation, 522 Fifth Ave., New York City.

PART SEVEN
THE HUMANITIES

DIVISION XXV
LITERATURE AND LANGUAGE

HISTORY

By Paul H. Buck

Instructor, Harvard University

QUALITY AND RANGE

The quality of historical work published in America during 1933 averaged higher, while the volume was somewhat smaller, than in the years immediately preceding. The range of interest continued wide, covering all phases of our national past and extending vigorously into most periods and phases of European history.

MAJOR CONTRIBUTIONS

The City.—Chief emphasis must be directed to several especially significant books, each of which has made an important contribution to the advancement of historical knowledge. The dean of social historians in this country, A. M. Schlesinger, published his much anticipated *The Rise of the City* (Macmillan), which covers the social and intellectual phases of the period 1878 to 1898, and constitutes the tenth volume of the now nearly completed *History of American Life* (A. M. Schlesinger and D. R. Fox, eds., 12 vols., in preparation). The book has a thesis, that the city rose to dominance in this period as the chief formative influence in American life, and a purpose, to convince a public, that had been carelessly viewing the '80s and '90s as years barren of culture, of the true renaissance these decades witnessed. The author has a wealth of erudite research to buttress his interpretation.

The Monroe Doctrine.—Dexter Perkins continues in *The Monroe Doctrine, 1826-1867* (Johns Hopkins) his definitive history so brilliantly begun in an earlier study on the origins of the doctrine.

Ironclad Warships.—*The Introduction of the Ironclad Warship* by J. P. Baxter (Harvard) is a work of unexcelled scholarship. Nothing in the way of research was left undone, and the skill with which the author organizes and interprets his rich materials will make unnecessary if not impossible any future re-survey of the same ground.

Southern Agriculture.—Many years of intelligent and diligent research went into the making of Lewis C. Gray's *History of Agriculture in the Southern United States to 1860* (2 vols., Carnegie Institution). The result is an exceedingly thorough, highly factual and competent survey of agriculture, unique for any section of the United States.

Turner. — Published posthumously, late in 1932, was F. J. Turner's *The Significance of Sections in American History* (Holt). This collection of twelve of Turner's earlier published articles and addresses was awarded, as it richly deserved, the Pulitzer Prize in History for 1932. Turner left an important two-volume manuscript on *Sections and the Nations, 1830-1850,* to which he had devoted the closing decade of his life. This is now announced for late 1933 publication.

New York.—E. W. Spaulding's *New York in the Critical Period, 1783-1789* (Columbia) is more than state history at its best. Ripe scholarship, new points of view and vigorous presentation throw so much more light upon the 1780's than anything previously published that re-interpretation of many long-standing opinions will be required.

GENERAL WORKS

Important among works of broad synthesis and general treatment was *A Century of Progress,* Charles A. Beard (ed., Harper), a symposium of articles summarizing and interpreting American development in various fields during the past hundred years. J. T. Adams completed his readable factual summary of American history by publishing the second volume covering the years 1860 to 1933 of the *March of Democracy* (Scribner), and also brought out a revised edition of his widely read, interpretative *Epic of America* (Little Brown). Mary R. Beard pointed to the influence of women in our history in *America Through Women's Eyes* (Macmillan). Mark Sullivan added volume five, *Over Here* (Scribner), a picture of the World War years at home, to his much praised "headline" history of *Our Times.* E. M. Erickson and D. N. Rowe attempted a one volume syntheses in *American Constitutional History* (Norton). G. Seldes surveys lugubriously the depression years in *The Years of the Locust, America 1929-1932* (Little Brown). Two volumes, nine and ten, were added to the superb *Encyclopaedia of Social Sciences,* E. R. A. Seligman and A. Johnson, (eds., Macmillan), carrying the work through "Mor."

PICTORIAL HISTORY

Gratifying was the use made of illustrations to convey accurate historical meaning. L. Stallings', *The First World War, a Photographic History,* (ed., Simon and Schuster), won universal and deserving praise for its impartial and convincing selection of pictures. Agnes Rogers' and Frederick Lewis Allen's *The American Procession* (Harper) is an excellent collection of photographs covering American life from the Civil War to the beginning of the World War. More limited in its appeal is T. O. Fuller, *Pictorial History of the American Negro* (Pictorial History, Inc.).

THE COLONIES

From a rich and mature store of knowledge comes C. M. Andrews, *Our Earliest Colonial Settlements* (New York Univ.), a fresh approach to the study of colonial origins written in readable form. A careful piece of research which will force re-interpretation in its field is A. C. Bining's *British Regulation of the Colonial Iron Industry* (Pennsylvania). P. G. E. Miller's *Orthodoxy in Massachusetts* (Harvard) takes precedence over all earlier discussions of the origins and development of Puritan ideas of politics and religion in so far as they relate to Massachusetts. The clear light of this essay in understanding should do much to free American criticism of misty conceptions in regard to an important formative influence in American development. S. Fleming's *Children and Puritanism* (Yale) is primarily a study in religious training and a good one. Other books in the colonial field are J. B. Brebner's *The Explorers of North America, 1492-180* (Macmillan) and G. F. Donovan's *The Pre-Revolutionary Irish in Massachusetts, 1620-1775* (published by the author, Webster Groves).

AMERICAN REVOLUTION

Two books which made contributions to lesser phases of the revolution are L. Einstein's *Divided Loyalties* (Houghton, Mifflin), a fascinating study of Americans resident in London and American spies in the British service, and H. Swiggert's *War Out of Niagara* (Columbia) a study of border warfare and Tory rangers. J. W. Preston's *Revolution, 1776* (Harcourt

Brace), vividly written in iconoclastic temper, strips the revolution of most of its myths, but in doing so fails to give a balanced account. C. F. Mullett's *Fundamental Law and the American Revolution 1760-1776* (Columbia), adds nothing to a subject previously illuminated by the scholarship of McIlwain, Schuyler, and Wright.

POLITICAL THEMES

H. Agar's *The People's Choice* (Houghton, Mifflin) is a jerky survey of the Presidency colored by the author's bias in favor of dictatorship and marred by a considerable ignorance. G. W. Johnson's *The Secession of the Southern States* (Putnam) is a provocative attack upon traditional views which even after some of its eccentricities are explained away will remain worthy of speculation. C. H. Coleman's *The Election of 1868* (Columbia) is an adequate study. W. E. B. DuBois, *Black Reconstruction in America, 1860-1880* (Harcourt, Brace) is a sharp attack with some effect on the views recently advanced by such white scholars as Bowers, Beale, Stryker, and Milton. T. A. Knight's *The Strange Disappearance of William Morgan* (published by the author, Brecksville), treats of an incident in the rise of the anti-masonic party. R. C. Martin's *The People's Party in Texas* adds details to an important movement.

DIPLOMACY

While Baxter and Perkins were publishing books, mentioned earlier, the diplomatic field also saw the appearance of a number of studies of a more restricted scope. Each of the following is an important monograph: F. S. Dunn, *Diplomatic Protection of Americans in Mexico* (Columbia); L. F. Hill *Diplomatic Relations Between the United States and Brazil* (Duke); R. L. Jones, *The Eighteenth Amendment and Our Foreign Policy* (Crowell); G. H. Ryden, *The Foreign Policy of the United States in Relation to Samoa* (Yale); H. G. Soulsby, *The Right of Search and the Slave Trade in Anglo-American Relations, 1814-1862* (Johns Hopkins); and, M. M. Wilkerson, *Public Opinion and the Spanish American War* (Louisiana State Univ.). A one volume survey is R. L. Jones's *History of the Foreign Policy of the United States* (Putnam).

SOCIAL THEMES

Religion.—W. W. Sweet's *Methodism in American History* (Methodist Book Concern) is a popular survey by the leading authority on Methodist history. G. A. Koch's *Republican Religion* (Holt) studies the generation after Independence when so many new and conflicting ideas were being introduced into America. W. E. Garrison's *The March of Faith* (Harper) reviews religious trends in the United States since 1865.

Race.—M. Grant's *The Conquest of a Continent* (Scribner) points to the importance of the Nordic strain in our past development and pleads unblushingly for "race purity" in the future. W. H. Mohr, *Federal Indian Relations* (Pennsylvania); L. Schrott *Pioneer German Catholics in the American Colonies 1734-1784* (Catholic Historical Society), and K. Gjerset, *Norwegian Sailors in American Waters* (Norwegian-American Historical Assoc.), also deserve mention.

Labor.—L. L. Lorwin's, *The American Federation of Labor* (Brookings Institution) is an excellent impartial account.

Miscellaneous social themes include: I. H. Irwin, *Angels and Amazons* (Doubleday, Doran), a treatment of the American woman during the past century; G. S. Jackson, *Early Songs of Uncle Sam* (Bruce Humphries), and A. Parry, *Garrets and Pretenders* (Covici-Friede), a history of Bohemianism in America.

THE SOUTH

In addition to Gray's work on Southern agriculture, mentioned above, several meritorious books on the South were published, R. B. Vance's *Human Geography of the South* (North Carolina) a superb regional study, has much to facilitate the historian's task. A. F. Raper's *The Tragedy of Lynching* (North Carolina) is a methodical case study of the lynchings that occurred in 1930. V. Dabney's *Liberal-*

ism in the South (North Carolina) is an important contribution surveying not deeply but wisely the leaven of liberalism in Southern history. Books of lesser importance on the South are: G. L. Tatum, *Disloyalty in the Confederacy* (North Carolina); J. W. Patton, *Reconstruction of Tennessee* (North Carolina); R. B. Flanders, *Plantation Slavery in Georgia* (North Carolina); and C. P. Denman, *Secession Movement in Alabama* (Alabama State Dept. of Archives and History).

THE WEST

B. W. Bond, Jr., has written a good regional account in his *The Civilization of the Old Northwest 1788-1812* (Macmillan), C. L. Skinner's *Beaver, Kings, and Cabins* (Macmillan) is a popularly written story of the fur trade. H. M. Chittenden's *The American Fur Trade of the Far West* (Press of the Pioneers), is a revision of a standard work. T. A. Rickard's *A History of American Mining* (McGraw Hill), while neither complete nor systematic, has much to commend it. G. Foreman's *Advancing the Frontier, 1830-1860* (Oklahoma) deals effectively with an important period. R. R. Wilson's *Out of the West* (Press of the Pioneers) is a general narrative of western expansion. E. W. Gilbert in *The Exploration of Western America* (Macmillan) deals with the half century before 1850.

STATE HISTORY

Setting new standards for work of its kind was the coöperative *History of the State of New York*, A. C. Flick (ed., vols. 1-4, ten volumes, in preparation, Columbia). The volumes published cover the colonial, revolutionary, and early independent periods. The work gives to New York a history respectable in scholarship, adequate in detail, and clear in exposition. E. M. Coulter's *A History of Georgia* (North Carolina) is well written. J. M. Morse's *A Neglected Period of Connecticut's History, 1818-1850* (Yale) covers a dull period thoroughly. A. Lewis's *Along the Arkansas* (Southwest) is full and authoritative on the period before 1800. LeR. R. Hafen's *Colorado* (Peerless) is readable. F. C. Lockwood's *Pioneer Days in Arizona* (Macmillan) is a good survey. A. H. Verrill's *Romantic and Historic Maine* (Dodd, Mead) is a selection of picturesque incidents and colorful personalities.

CHICAGO

The Century of Progress Exposition at Chicago was accompanied by a number of books on the city's history. Such books written for the occasion are usually of little value but in this case the output was surprisingly good Most significant are: M. M. Quaife *Checagou* (Chicago), covering the years 1673 to 1835; B. L. Pierce, *As Others See Chicago* (Chicago), a collection of travelers' comments from 1673 to 1933; E. L. Masters, *The Tale of Chicago* (Putnam); H. L. Smith *Chicago's Great Century, 1833-193* (Consolidated); E. Butt, *Chicago Then and Now* (Finch and McCulloch); R. McKenna, *Chicago Thes First Hundred Years* (Old Fort Dearborn), and P. J. Stackhouse, *Chicag and the Baptists* (Chicago).

LOCAL HISTORY

San Francisco was studied in H Asbury's *The Barbary Coas* (Knopf); C. C. Dobie, *San Francisc A Pageant* (Appleton-Century), an C. C. Phillips, *Portsmouth Plaza, Th Cradle of San Francisco* (Nash). Additional items in local history are: M Mayo, *Los Angeles* (Knopf); H. Fergusson, *Rio Grande* (Knopf); A. C Love, *History of Navarro Count Texas* (Southwest); J. D. Phillip *Salem in the Seventeenth Centur* (Houghton, Mifflin); R. B. Stanto *Colorado River Controversies, 184 1922* (Dodd, Mead); A. W. Weddel *Richmond, Virginia, in Old Print 1737-1887* (Johnson), and William burg Garden Club (compilers), *A Wi liamsburg Scrap Book* (Dietz).

ANTIQUITY

American scholars working in th ancient field produced several works merit. J. H. Breasted in *The Dawn Conscience* (Scribner), seeks the b ginning of man's moral nature ancient Egypt. T. Frank's *Rome a Italy of the Republic* (Johns Ho kins) is the first volume of an important economic history of Rome. W. C. Greene's *The Achievement of Rome* (Harvard) is an intelligent appraisal. M. Hammond's *The Augustan Principate* (Harvard) is an admirable investigation of the bases of imperial power. H. D. Hansen's *Early Civilization in Thessaly* (Johns Hopkins), is illuminating.

MEDIEVAL

Much of the vigor of American interest in the Middle Ages can be traced to the Mediaeval Academy of America. This active organization sponsored two high grade studies during the past year: C. Stephenson, *Borough and Town* (Med. Acad.), a brilliant exposition of the origins of English towns and J. R. Strayer, *The Administration of Normandy under Saint Louis* (Med. Acad.), a significant institutional investigation. George Sarton's *Introduction to the History of Science* (vol. 2, covering the Middle Ages, Carnegie Institute) is an erudite and invaluable work of reference.

MODERN EUROPE

Renaissance.—G. T. Buckley's, *Atheism in the English Renaissance* (Chicago) and D. Mathew's *The Celtic Peoples and Renaissance Europe* (Shad and Ward) were books on the Renaissance by American scholars.

England and the British Empire were studied in C. Brinton's brilliant and thoughtful *English Political Thought in the Nineteenth Century* (Benn); R. I. Lovell, *The Struggle for South Africa* (Macmillan); H. T. Manning, *British Colonial Administration After the American Revolution* (Yale), and R. J. S. Hoffman, *Great Britain and the German Trade Rivalry, 1875-1914* (Pennsylvania).

France was studied in D. C. McKay's *The National Workshop* (Harvard), a very capable account of the French communistic effort of 1848; C. T. Muret's *French Royalist Doctrines Since the Revolution* (Columbia), and L. Gershoy's *The French Revolution and Napoleon* (Crofts).

Miscellaneous European Themes appear in G. Seldes, *World Panorama, 1918-1933* (Little Brown); J. W. Swain, *Beginning of the Twentieth Century* (Norton); W. L. Langer, *Foreign Affairs Bibliography* (Harper); R. L. Sontag, *European Diplomatic History, 1871-1932* (Century); C. Day, *Economic Development of Modern Europe* (Macmillan); G. B. McClellan, *Modern Italy* (Princeton); J. E. Swain, *The Struggle for the Control of the Mediterranean Prior to 1848* (Stratford); J. A. Brandt, *Toward the New Spain* (Chicago), and A. C. McGiffert, *A History of Christian Thought* (vol. 2, Scribner).

LATIN AMERICA

C. E. Chapman's *Colonial Hispanic America* (Macmillan) is a survey. J. Ragatz's *A Guide for the Study of British Caribbean History, 1763-1834* (U. S. Govt. Printing Office) is useful for reference.

BIOGRAPHY

By Malcolm Oakman Young

Reference Librarian, Princeton University

THE LITERATURE OF BIOGRAPHY

The popularity of biography, at least among the writers, lessens hardly at all. The quality average is high this past year and a limited article on the field can be hardly more than a mention of the best. For those who are interested in the literature of biography as a subject, we suggest the following items: "Debunkery and Biography" by Claude M. Fuess (*Atlantic Monthly*, March, 1933), himself a successful writer in the field; "History and Biography" (*Yale Review*, March, 1933) by Wallace Notestein and "The Skeptical Biographer" (*Harper's*, January, 1933) by Bernard De Voto.

GAMALIEL BRADFORD'S JOURNAL

One of the most important books to be classed here is the *Journal of Gamaliel Bradford,* edited by Van Wyck Brooks (Houghton, Mifflin), covering a long span of years, full of self-analysis, revealing his philosophy of life, his methods of work, and critical comments on men and books. This self-portrayal of America's late foremost biographer is a permanent contribution to literature.

COLLECTED WORKS

A few books collect varied types: Charles Thwing's *Friends of Men, Being a Second Series of Guides, Philosophers and Friends* (Macmillan); *American Preachers of Today* by Edgar Jones, appraising thirty-two individuals (Bobbs-Merrill); *Men Against Death,* by Paul de Kruif (Harcourt), and thirteen financiers in *Mirrors of Wall Street* (Putnam). We cannot omit mention of two series of brief biographies, originally printed in England and reprinted here: The *Appleton Biographies* (Appleton), and *Great Lives* (Macmillan); the former contains only one or two American subjects, and neither contains American authors.

AUTOBIOGRAPHIES

There is an increasing number of autobiographical works appearing, the more important of which we will place together. That of William E. Barton, biographer of Lincoln, is published posthumously (Bobbs-Merrill); Hamlin Garland continues his literary reminiscences in *My Friendly Contemporaries* (Macmillan); Mary Austin entitled hers, *Earth Horizon* (Houghton, Mifflin); Floyd Dell, his, *Homecoming* (Farrar and Rinehardt); the negro writer, James Weldon Johnson, calls his, *Along this Way* (Viking). The journalist, Charles Edward Russell, has an excellent title, *Bare Hands and Stone Walls, Reminiscences of a Side-line Reformer* (Scribner). Willis J. Abbott, newspaperman, tells much of the political history of his time in *Watching the World Go By* (Little, Brown). The Pennsylvania politician, William S. Vare, writes *My Forty Years in Politics* (Roland Swain, Phila.). John Moody, financier, tells much of his mental and spiritual growth in *The Long Road Home* (Macmillan). A vivid picture of her early days in the 90's is in the first volume of her *Intimate Memories,* entitled *Background* (Harcourt Brace) by the original Mabel Dodge Luhan A still more unusual character, is Gertrude Stein, uniquely self-portrayed, as by proxy, in her *Autobiography of Alice B. Toklas* (Harcourt, Brace). Included in this same group are three volumes of Americana; Maltie A. Hatcher has edite *Letters of an Early American Traveller; Mary Austin Holley, her Lif and Works,* 1784-1846 (Southwes Press). *A Frontier Lady: Recollections of the Gold Rush and Earl California* (Yale Press), the journa of the mother of Josiah Royce; als *Julia Newberry's Diary,* with an introduction by her daughters, Margare Ayer Barnes and Janet Ayer Fai banks (Norton) placed in early Ch cago. Appropriately appearing th same autumn are *Crowded Hours,* th reminiscences of Alice Roosevelt Longworth (Scribner) and *Dolly Gann Book* (Doubleday), both full of socia and political Washington.

BIOGRAPHIES OF PRESIDENTS

Jefferson's successful French b ographer, Gilbert Chinard, now pr duces *Honest John Adams* (Littl Brown). Marquis James gives us a other vivid biography, *Andrew Jac son, the Border Captain* (Bobbs-Me rill). The two-volume *President Lin oln* by the late W. E. Barton (Bobb Merrill), is a real addition to t books on this period of Lincoln's lif L. Pierce Clark has a Freudian an lysis in *Lincoln, a Psycho-biograp* (Scribner). Mary Lincoln is the su ject of another book, this by Ca Sandburg and P. M. Angle (Harcou Brace). Allan Nevins, whose *Life Cleveland* won the Pulitzer prize 1932, now edits the *Letters of Gro Cleveland* (Houghton, Mifflin). Jo K. Winkler wrote a not very i portant life of Woodrow Wils (Vanguard), while Edith Gittin Reid's *Woodrow Wilson* (Oxfo

Press) promises to be a real contribution. Naturally there are no valuable lives of Franklin Roosevelt as yet. His mother is responsible for *My Boy Franklin* (Long and Smith), and Earle Looker has written *Franklin Roosevelt in Action* (John Day); also there is Belle Moses' *Franklin Delano Roosevelt* (Appleton-Century).

PUBLIC FIGURES, POLITICAL AND MILITARY

The first governor of Virginia (1710-1722) Alexander Spotswood, is worthily treated by Leonidas Dodson and the early jurist Benjamin Chew, by B. A. Konkle (U. of Penn.). The first all round portrayal of De Witt Clinton is well done by Dorothy Bobbe (Minton Balch). *An American Colossus,* by R. E. Bailey (Lothrop, Lee and Shepard) is a new biography of Alexander Hamilton. Comparable to the Adamses is the Blair family and William E. Smith has written in two volumes, *The Frances Preston Blair Family in Politics* (Macmillan), a valuable picture from 1791 to 1875. An obscure figure, Judah P. Benjamin, Secretary of State in the Confederacy, has been well revived by Rollin Osterweis (Putnam), a promising new writer. Tyler Dennett, formerly in the State Department, has written a scholarly, carefully critical, life of John Hay (Dodd, Mead), one of the outstanding works of the year. In the muck-raking spirit of the biographies of a few years ago is Harvey O'Connor's *Mellon's Millions* (Day). *The Making of Nicholas Longworth,* is by his sister, Clara L. de Chambrun (Long and Smith). The conspicuous Huey P. Long is pictured in *The Kingfish,* by Webster Smith (Putnam). A. T. Mason's *Brandeis* (Princeton University Press) is a careful study of the liberal Justice. The colonial English fighter, Lord Jeffery Amherst, has his first full biography, by J. C. Long (Macmillan). Two well done portraits are Lloyd Lewis's *Sherman, Fighting Prophet* (Harcourt) and *Beauregard, the Great Creole,* by Hamilton Basso (Scribner), the latter influenced by the southern origin of the author.

FINANCIERS AND INDUSTRIALISTS

A spectacular Californian multimillionaire is set forth in *Lucky Baldwin,* by C. B. Glasscock (Bobbs-Merrill). Burton J. Hendrick adds another *Life of Andrew Carnegie* (Doubleday), and another biography of E. H. Harriman is by H. J. Eckenrode and P. W. Edmunds (Greenburg). John K. Winkler, who has previously written of Morgan and Carnegie, now does *The Stillmans, Father and Son* (Vanguard). John T. Flynn, in *God's Gold* (Harcourt) pictures Rockefeller and his times. Excellent reading is Thomas W. Lamont's *Henry P. Davison* (Harper).

LITERARY FIGURES

The voluminous writer on American sports and of rather cheap romances, Henry William Herbert, always known as Frank Forester, has his first biography, by William S. Hunt (Carteret Book Club). Cyril Clemens adds to the history of American humor in his life of Josh Billings (International Mark Twain Society). Hildegarde Hawthorne presents a new portrait in *Romantic Rebel,* the story of the life of her father, Nathaniel Hawthorne (Century), while a new interpretation of the Quaker John G. Whittier is by John Mordell, entitled *Quaker Militant* (Houghton). The first historian of American literature, and scholar, Moses Coit Tyler, has a life by H. M. Jones (U. of Mich.). A critical biography of the poet, Sidney Lanier, is by A. H. Starke (U. of North Carolina). An attractive figure is recalled in Fairfax Downey's *Richard Harding Davis* (Scribner). The period of the 90's is also recalled in Franklin Walker's *Frank Norris* (Doubleday). James Truslow Adams has written the first biography of Henry Adams, valuable but not definitive (Boni). Van Wyck Brooks has rewritten his *Ordeal of Mark Twain* (Dutton), first published in 1920 and an important work of criticism. A small volume is Stephen Leacock's *Mark Twain* (Appleton). A third work on the same subject is M. M. Brashear's *Mark Twain, Son of Missouri* (U. of N. C.). The too little known poetess, Adalaide Crapsey, is interpreted by Elizabeth Osborn (Bruce Humphries), and the popular poet, Edwin Markham, by W. L. Stidger (Abington). H. J. Coolidge and R. H. Lord published *Archibald Cary Coolidge* (Houghton), the life and letters of the scholarly historian. Carl Van Doren's *Sinclair Lewis* (Doubleday) and Dorothy Dudley's *Forgotten Frontier, Dreiser and the Land of the Free* (Smith and Haas) are critical works on two present-day writers. The newspaperman, E. W. Scripps, has a life by N. D. Cochran (Harcourt).

FOREIGN SUBJECTS

Two vivid lives of queens are J. A. Mahan's *Maria Theresa of Austria* (Crowell) and Katharine Anthony's *Marie Antoinette* (Knopf), the latter unfortunately overshadowed by a life of the same subject by Stefan Zweig, recently published. The great tragedian, Edmund Kean, has a worthy biographer in H. N. Hillebrand of Columbia University (Columbia Univ.). The English actress, Fanny Kemble, for a period the wife of a southern plantation owner, has a biography by L. S. Duver (U. of North Carolina). Lewis Browne has contributed one to the group of biographies of Spinoza appearing this year (Macmillan). Edward J. O'Brien has written *Son of the Morning, a Portrait of Frederich Nietzche* (Brewer, Warren and Putnam). Archibald Henderson has produced his second work on G. B. Shaw (Appleton), 22 years after his first. Two picturesque figures are portrayed in *The Odyssey of Cabenza de Vaca* (Century) and *The Crimson Jester, Zapata of Mexico,* by H. H. Dunn (McBride).

MISCELLANEOUS SUBJECTS

Two contrasted religious leaders are portrayed by James Laver in *Wesley* (N. Y., Appleton) and J. H. Evans in *Joseph Smith* (N. Y., Macmillan). The early American naturalist, William Bartram, is written of by N. B. Fagin (Johns Hopkins). That present day authority on the birds of America, Frank M. Chapman, has written his fascinating autobiography (Appleton-Century). The painter and sculptor, Thomas Eakins, is the subject of a beautifully produced work by Lloyd Goodrich (Studio Publications). A valuable bit of Americana, Wild Bill Hickok and his period are once more the subject of a book, this one by W. E. Connelley (Press of the Pioneers). A well done autobiographical volume is *Land of the Spotted Eagle* (Houghton), by Chief Standing Bear, dealing largely with his early days.

TRAVEL

By Elizabeth T. Platt

American Geographical Society

UNITED STATES

A number of noteworthy guidebooks for the United States have been issued during the year largely as a result of the International Geological Congress held in this country during the summer. A series of guides—thirty in number, written primarily for the geologist—was printed for the members of the Congress (*Excursions in the United States,* U. S. Gov't Print. Off.). N. H. Darton's *The Southern Pacific Lines — New Orleans to Los Angeles* (U. S. Geological Survey. Bull. 845) is an addition to the valuable series of *Guidebooks of the Western United States* published by the Geological Survey, and describing the country along the various railroad routes of the West. Both the physical and human geography of the regions under discussion are dealt with. A. K. Lobeck's *Airways of America. Guidebook No.* 1. *The United Air Lines* (Geographical Press) is a geological and geographical description of the route from New York to Chicago and San Francisco. Frank Monaghan's

French Travellers in the United States, 1765-1932 (New York Public Library) is a bibliography of some 1,500 titles. Libraries are indicated where copies of the works listed may be found.

SOUTH AMERICA

Tschiffely's Ride: Ten Thousand Miles in the Saddle from Southern Cross to Pole Star (Simon and Schuster) is A. F. Tschiffeley's account of his two and a half years' adventurous ride on horseback from Buenos Aires to Washington. Another record of the crossing of South America is Dr. H. H. Rusby's *Jungle Memories* (Whittlesey House). It is a story of a trip made almost fifty years ago across the Andes and through the Brazilian jungles in search of new medicinal plants. Desmond Holdridge's *Pindorama: Jungle—to You* (Minton, Balch) tells of exploration in the little known country of the borderland of Brazil, Venezuela, and Guiana. The author was on the staff of the department of ethnology of the Brooklyn Museum. André Siegfried's *Impressions of South America* (Harcourt, Brace) gives a vivid picture of the author's impressions gained on a recent trip to South America. The complete text of the manuscript diary kept by Charles Darwin on the voyage of the *Beagle* has been printed for the first time in *Charles Darwin's Diary of the Voyage of H. M. S. "Beagle"* (Macmillan). It is edited by his granddaughter Nora Barlow.

ASIA

Sven Hedin's *Riddles of the Gobi Desert* (Dutton) is a companion volume to *Across the Gobi Desert,* noted last year. It continues the narrative of the Sino-Swedish expedition which went into the field in 1927. There are chapters dealing with archaeology, meteorology, and the problem of Lop Nor compiled from reports and diaries of the members of the expedition. *Jehol, City of Emperors* (Dutton), also by Sven Hedin, tells of the summer residence of the Manchu emperors, a replica of which was erected for the Century of Progress Fair in Chicago. *The Empty Quarter: Being a Description of the Great South Desert of Arabia Known as Rub' al Khali* (Holt) is H. St. J. B. Philby's record of ninety days travel across the great southern desert of Arabia (see also Bertram Thomas' *Arabia Felix* (noted last year). *Three Kingdoms of Indo-China* (Crowell) by H. J. Coolidge and Theodore Roosevelt is a record of the Kelley-Roosevelts Expedition of the Field Museum to southeastern Asia. For an account of the section led by the Roosevelts see *Trailing the Giant Panda.* The present volume deals with the work of a group of scientists whose objective it was to study the bird, mammal and reptile life in unknown regions of northwestern French Indo-China. There is a section on the mountain tribes. Elizabeth Knowlton's record of the German-American Himalayan expedition in which an attempt was made to climb Nanga Parbat is contained in *The Naked Mountain* (Putnam).

POLAR REGIONS

In *True North* (Scribner) Elliott Merrick tells of two years spent in Labrador. It is simply and sincerely written with a sympathy for the people of the region. F. S. Chapman's *Northern Lights* (Oxford Univ. Press) is the official account of the British Arctic Air-Route Expedition which set out to investigate the possibilities of an inter-continental air route between Europe and Canada *via* Greenland. Robert Marshall's *Arctic Village* (Smith and Haas) is an account of fifteen months spent in the region of the Upper Koyukuk River, Alaska. The book paints a "picture of the civilization of whites and Eskimos which flourishes . . . 200 miles beyond the edge of the Twentieth Century." Helge Ingstad's *The Land of Feast and Famine* (Knopf) is a record of four years spent in northern Canada in the vicinity of Great Slave and Athabaska lakes. Jan Welzl's *The Quest for Polar Treasures* (Macmillan) is a continuation of *Thirty Years in the Golden North.* J. G. Hayes' *The Conquest of the South Pole: Antarctic Exploration,* 1906-1931 (Macmillan) records the work of explorers of the present century and continues the history of Antarctic exploration contained in H. R. Mill's *Siege of the South Pole* and Sir Clements Markham's *Lands of Silence.*

SAILING

An unusual number of interesting records of life on sailing vessels have been published during the year. Felix Riesenberg's *Log of the Sea* (Harcourt, Brace) is a collection of papers brought together to form a continuous record of a large part of his experiences at sea. J. H. McCulloch's *A Million Miles in Sail* (Dodd, Mead) is the story of the career of Captain C. C. Dixon whose observations at sea extend over half a century. *The Cruise of the Zaca* (Harper) by Templeton Crocker is a narrative of the voyage around the world of a two-masted schooner. A. J. Villiers has again added to the literature of sailing in *Grain Race* which is the record of the voyage of a four-masted sailing vessel in the grain "race" from Australia to the English channel.

MISCELLANEOUS

Hortense Powdermaker's *Life in Lesu* (Norton) is the result of almost a year which the author spent in a village on the east coast of New Ireland. The intimate life of the people is described. Carveth Wells' *Kapoot* (McBride) is "a narrative of a journey from Leningrad to Mount Ararat in search of Noah's Ark." W. B. Seabrook's *Air Adventure* (Harcourt, Brace) is an account of a flight over the Sahara from Paris to Timbuctoo.

FICTION

By May Lamberton Becker

Readers' Guide, *The New York Herald-Tribune*

ROMANCE AND REALISM

A survey of the year's fiction reveals unusual features but no evidence from which indication of a general trend may be obtained or even signs of new and significant development. The sensation of 1933 was made by *Anthony Adverse,* Hervey Allen's huge novel; appearing at midyear, its 275,000th copy was ready for Christmas. It would be unsafe to infer from its success, however, that the country has turned *en bloc* to a taste for romanticism, though Herbert Gorman's *Jonathan Bishop* later succeeded in this field. The novel most popular up to the time of Mr. Allen's *magnum opus* was Sinclair Lewis's insistently realistic, prison-reform novel, *Ann Vickers,* the story of a curiously old-fashioned modern "career-woman", while a steady and long-continued popularity attended Gladys Hasty Carroll's quiet novel of New England farm life, *As the Earth Turns.* New England figured in another novel of widely distributed favor, *The Last Adam,* by James Gould Cozzens, a broadly indicated portrait of a country doctor. The depression at last found sublimation in our most beautiful, original and touching fantasy of recent years, Robert Nathan's *One More Spring;* it figured also as a moving force in another popular novel, Helen Hull's *Hardy Perennial.* Isabel Paterson's *Never Ask the End* attracted the attention not only of critics by its distinctive technique but of the general reading public by its presentation of disillusioned Americans in Paris. Irving Fineman produced the most important novel of Jewish life yet written in America, *Hear Ye Sons,* told as the autobiography of a living man, it has the status of historical fiction. Two proletariat novels stood out—Albert Halper's *Union Square* and Catharine Brody's *Cash Item.* Booth Tarkington and Joseph Hergesheimer were represented by unimportant works, the former by a sketch of theatrical life and character, *Presenting Lily Mars*; the latter by short stories in *Tropical Winter.* Zona Gale's *Papa La Fleur,* however, was an excellent example of a method and manner distinguishing her among American novelists. Dorothy Canfield's *Bonfire* set a character, whose sublety becomes apparent as the novel proceeds, against a small Vermont community where society long since stratified. A first novel promising much was the close and critical study of college life, *Not to Eat, Not for Love,* by George Anthony Weller.

CHRONICLE AND REGIONAL NOVELS

There were several chronicle novels covering more than one generation of American family life, the most important being a well-rounded record of a century in the Middle West—Louis Bromfield's *The Farm.* Ursula Parrott's *The Tumult and the Shouting* concerned four generations of Irish Catholics in Boston, and Margaret Ayer Barnes's *Within This Present,* two generations in Chicago. Of the regional novels, Caroline Miller's *Lamb in his Bosom* was the most striking; the scene is southern Georgia before the Civil War. Kenneth Roberts continued his widely-read *Arundel* with *Rabble in Arms,* bringing the story through the campaign of Burgoyne. Walter D. Edmonds covered the years of the building of the Erie Canal in his romance *Erie Water.* Merle Colby built up a pioneer town from a campfire on an Ohio prairie in *New Road.* Stewart Edward White in *Ranchero* took his "Long Rifle" into the California of a century ago. Oliver La Farge's *Long Pennant* took to the sea in the early days of the Republic, and a strongly inspirational novel, coming out at the lowest point of the general depression and helping to lift it, was Rose Wilder Lane's *Let the Hurricane Roar,* a story of pioneer struggle on the prairie. A popular novel of present-day prairie country was Bess Streeter Aldrich's *Miss Bishop,* following fifty years of a State University. Alice Tisdale Hobart gave a new slant to the Orient in *Oil for the Lamps of China.*

PRIZE AWARDS

The award of the Pulitzer Prize to T. S. Stribling's *The Store* was the more valuable for being conferred upon "work in progress," this thorough-going and significant novel being one of a series to be continued in 1934, though in itself complete. Another annual award awaited with general interest, the Harper Prize, went to Paul Horgan's study of character in musical surroundings, *The Fault of Angels.*

THE SHORT STORY

The experimentation of the year was largely confined to short story writing and was in the hands of a few writers not going far. The nearest approach to the volume by Ernest Hemingway, *Winner Take Nothing,* was made by two realistic collections—*We Are the Living* by Erskine Caldwell, whose *God's Little Acre* fluttered the dove-cotes early in the season, and *No More Trumpets,* by a highly promising new writer, George Milburn. Dorothy Parker's *After Such Pleasures* followed her own successful pattern. Kay Boyle experimented boldly in the short story collection, *First Lover.* This volume was followed later in the season by her mature and fantastic *Gentlemen, I Address You Privately.* Edna Ferber's *They Brought Their Women,* and Sherwood Anderson's *Death in the Woods* were after models to which these writers have accustomed their public. There seems to be evidence that the short story in America is due for an access of interest as an art-form; one of these signs is the moving of the forceful and distinctive magazine *Story* from long-distance operations from Majorca to headquarters in the United States.

CONCLUSIONS

More evidence than this would be needed on which to base conclusions of any importance as to movements, trends or currents now operative in American fiction. The American novel reaches an audience this year whose interest has been continually distracted from fiction by literary works of another nature, and indeed by other works of man not literary at all. A like scattering has naturally taken place among authors.

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They Brought Their Women. Edna Ferber (Doubleday, Doran).

Death in the Woods. Sherwood Anderson (Liveright).

POETRY

By Joseph Auslander

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POETS BUSY THOUGH CODELESS

A code for poets! Pegasus harnessed with the blue eagle! Every rhymster to "do his part"! If such headlines do not flare across the pages of the daily press, it is not because the poets fail to participate in the struggle for recovery. A wise Administration, realizing doubtless that they are a wayward, whimsical lot, leaves them to do their best under the least compulsion. And indeed they are busy. An examination of the publishers' lists reveals well over sixty titles within the 1933 twelvemonth. If some of them possess small distinction, let no one cavil. A book of poor verse does no harm since it usually goes unread. It may, on the other hand, give much pleasure to the author and his wife, besides making both of them more eager and critical readers of other poetical productions. Whenever many persons interest themselves in an art, fine works are sure in the long run to make their appearance.

ROBINSON JEFFERS

The most distinctive contribution of the year is certainly Robinson Jeffers' *Give Your Heart to the Hawks* (Random House). This tense narrative has its scene on the California coast near Carmel, a region on which Mr. Jeffers continues to confer a legendry. At a drunken beach party Lance Fraser saw his brother, of whom he had good reason to be jealous, fall from a cliff. In the blind impulse of the moment he ended the already broken life. Fayne, the wife who had witnessed the crime, persuaded him to bear the punishment of remorse instead of surrendering himself. But Lance was not of a caliber to endure so heroic a chastisement. Facing the grief of his father, his mother, and his brother's girl, he gradually broke until even Fayne admitted that he should have confessed:

''I did not know that your mind
needed men's judgement
And the helpless appraisals of the
world to help you. You stood so
strong
Separate, clear, free in my eyes, and
I did violence to you
When I kept you.''

EDWIN ARLINGTON ROBINSON

Edwin Arlington Robinson gives us another story in verse, *Talifer* (Macmillan), where the young man is temporarily enticed away from the right girl. After a year of married life the disillusioned couple are visited by Dr. Quick, who plays the role of guiding fate in the story. One asks whether Mr. Robinson knew what he intended in this poem. He has called it *Talifer*, but is one wrong in suspecting that his real interest lay in the chilly Karen with her ''immune perfection''? The style certainly grows more lively and interesting whenever she comes into play. Mr. Robinson's audience waits for a return of the charged reticences of his early lyrics. Dr. Quick of this volume speaks of

''a brevity I may forget
Except for solemn and important
moments.''

Why not more of those ''solemn and important moments''?

ARCHIBALD MacLEISH

Archibald MacLeish offers *Frescoes for Mr. Rockefeller's City* (John Day). He would reflect both the beauty and crassness of American civilization in his six panels. The first one, *Landscape as a Nude*, has great beauty. *The Wild West* follows, and then *Immigration*:

''We were born for another look of
the sky

. . . .

The place of our graves is marked by
the telegraph poles.''

Next, one may view the American artist, so out of harmony with his environment, ''living the life of a classic in bad air,'' so much preferring the ''cypresses mentioned in Horace, and Henry James.'' Because of the Empire Builders, the Harrimans, the Vanderbilts, the Mellons

''People have forgotten how full clear
and deep
The Yellowstone moved on the gravel,
and grass grew
When the land lay waiting for her
westward people.''

SARAH TEASDALE

The estate of Sarah Teasdale has published her *Strange Victory* (Macmillan). This is a small volume of lyrics which compares favorably with her other work. The admirers of this poet, deeply grieved at her unhappy death, will want to add these poems to their collections.

EZRA POUND

Ezra Pound's *Draft of XXX Cantos* (Farrar) was received on the whole with disappointment. While it is possible to perceive the fine quality of the work when read in fragments, it does not surrender its meaning to a reader of ordinary persistence. But since that may as well be the fault of the reader as of the poem, Mr. Pound can afford to wait until persons of sure taste have taken more thorough possession of his cantos.

OTHER POETS

Other poets whose names are well known to the public have brought out books during the year. Willa Cather reprints her *April Twilight* (Knopf) with new material added. One rereads with pleasure her fine ballads, *The Palatine* and *Spanish Johnny.* W. Faulkner's *Green Boughs* (Smith) does little but remind us that a good novelist is not often a good poet. Cale Young Rice's *High Perils* (Putnam) is his twenty-first volume, and it is filled with the wisdom of long experience. G. E. Woodberry's *Selected Poems* (Houghton Mifflin) were enthusiastically and gratefully reviewed by John Erskine who knew well this teacher, critic and poet. He calls attention especially to the sonnet *On a Portrait of Columbus.* Sylvia Townsend Warner collaborates with Valentine Ackland in *Whether a Dove or Seagull* (Viking Press), though the reader is not told which is the author of any single poem. Clifford Bax gives *Farewell, My Muse* (Macmillan) and Robert Hillyer brings out his *Collected Verse* (Knopf). One hopes that the author of *For Maister Geoffrey Chaucer* and many other pleasant lyrics is not already settling into the easy chair. Frances Frost's *Pool in the Meadow* will be welcomed by the widening circle of this poet's admirers. Let us mention also W. H. Davies' *Poems* (Smith), containing forty new lyrics, Harold Vinal's *Hymn to Chaos* (Day), and Benet's *Fifty Poets* (Duffield), an anthology for which some writers consented to select their best poems, whereas others declined.

THE NEW POETS

Turning next to the newcomers one reads with admiration Horace Gregory's *No Retreat* (Harcourt), a volume in the modernist idiom and touched with genuine fire. There are finer things here, but the casual reader will like particularly such character sketching as *Emmanuel Bluethorn Requiescat,* and *Tombstone with Cherubim*:

Hello Marie!
You should have gone out like a row
of mazda lamps
Smashed with a crowbar.

At the opposite pole of poetic inspiration is Wilbert Snow's *Down East* (Gotham House) in which he talks of the Maine coast and its inhabitants. One is grateful for so well turned a lyric as *Conflict.*

In a similar vein though of lesser artistic weight is Walter R. Hard's *Mountain Township* (Harcourt) which Dorothy Canfield introduces. One likes for example the elderly deacon who takes out his teeth and sprawls the blacksmith on the ground; it seems he had ''kep' in practise wrastlin' with the Lord.'' Robert Coffin's *Ballads of Square-Toed Americans* would please if they came up more frequently to the lilt of *Ballad of a Grandfather*:

My grandsire was a deep-sea lad
A proper man of mettle,
He had a nose like a figurehead
And a laugh like a ringing kettle.

Some student poets are Boris Todrin, whose *First Furrow* (Lieberman) has a cleverly chosen title for a first volume, Anne Persov whose *Whatever You Reap* (Shuman's, Detroit), won the $2,500 poetry prize at the University of Michigan, and Paul Engle whose *Worn Earth* (Yale Press) is number twenty-one of the Yale Series of Younger Poets. S. T. Kimmel's *Kingdom of Smoke* (Brown) pictures the Illinois coal mines, P. W. Kloss' *Arid* (Macmillan), the Indians and Mexicans of the south-west, Ruth St. Denis' *Lotus Light* (Houghton Mifflin) concerns the moods which find expression also in her dancing, V. G. Burns' *I'm in Love with Life* (Dutton) is the verse of a radio teacher of poetry, Duncan Fife's *Scarlet, Blue, Green* (Macmillan) is about fox hunting, otter and beagling. Harold Lewis Cook's *Spell Against Death* (Harpers) received good reviews. Carleton Drewry's *Proud Horns* (Macmillan) gives promises of good things from this poet. One enjoys from the pen of the same poet the poignant and expressive *Chaste Profligate:*

And many knew her with their hands
But none had found her with his
mind.

Leila Jones' *Assent to Autumn* (Daye) gives genuine pleasure by its workmanship and fine emotional impact. Let us mention also D. W. Hicky's *Bright Harbor* (Holt), Lawrence Lee's *Summer Goes On* (Scribners) and Mrs. O'Halloran's *Young Man, Beware* (Houghton).

BOOKS ABOUT POETRY

Among books about poetry the event of the year was A. E. Housman's *The Name and Nature of Poetry* (Macmillan) in which one may read with delight about the composition of *Shropshire Lad.* Hebert E. Read's *Form in Modern Poetry* makes an interesting distinction between personality and character which may form the basis of a new ethic for the creative artist. No one interested in poetry will want to miss the delightful essay by Logan Pearsall Smith, *On Reading Shakespeare* (Harcourt). Other titles in this field are Lascelle Abercrombie's *Poetry, Its Music and Meaning* (Oxford Press), Elizabeth Drew's *Discovering Poetry* (Norton), Frank Kendon's *Adventures in Poetry* (Macmillan) and Theodore Maynard's *Preface to Poetry* (Appleton-Century).

MISCELLANEOUS

Those persons who prefer to take their poetry with laughter had best look into Margaret Fishback's *Out of My Head* (Dutton), W. J. Funk's *Light Lines and Dears* (McBride) or Berenice Dewey's *Poems* (Ripperger), or if he is looking for old favorites, Lewis Carroll's *Collected Verse* (Macmillan) and W. S. Gilbert's *Plays and Poems* (Random House). Christopher Morley returns with *Mandarin in Manhattan, Further Translations from the Chinese* (Doubleday), and finally anyone who will open Dwight Fiske's *Without Music* (Chatham Press) may see Cleopatra and Queen Anne in a new light besides making the acquaintance of other and gayer ladies.

CRITICISM AND BELLES LETTRES

By Malcolm Oakman Young

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NINETEENTH CENTURY WRITERS

No better way can be found to begin surveying this field, so indefinite in its limits and contents, than to mention the new editions of certain earlier leaders: Bliss Perry, the Emerson scholar, has ably edited *The Heart of Emerson's Essays* (Houghton), including representative essays from the different periods of Emerson's writing. *Walt Whitman and the Civil War,* edited by C. I. Glicksberg (U. of Penn.) contains largely hitherto unpublished remnants by Whitman, written in or dealing with the war period. The English poet, Walter de la Mare, has edited for us, with an introduction, *Selected Letters of George Edward Woodberry* (Houghton), our late 19th century critic and poet. There has also appeared, edited by Gertrude H. Brownell, an anthology of selections from the writings of the critic William Cary Brownell, together with biographical notes (Scribner).

THE AESTHETIC

A Harvard professor of mathematics, George D. Birkhoff, has written a volume, possibly to be compared to Hambidge's *Dynamic Symmetry,* namely, *Aesthetic Measure* (Harvard), applying to certain forms of art as exact measure, more successfully in some than in the less concrete like music. The provocative Joseph W. Krutch's new book is *Experience and Art, Some Aspects of the Esthetics of Literature* (Smith and Haas), a "naturalist explanation of literature," in which he "attempts to relate the esthetic experience in the general experience of living, to analyze the different emotions and satisfactions that come from reading a work of literature and to define the function of criticism.'' A book for the layman, and more elementary student, is Helen Gardner's *Understanding the Arts* (Harcourt), written from the pedagogical point. Related to this group are books like Max Eastman's *Art's Right to Independence* (Knopf); *A Psychological Approach to Literary Criticism* (Appleton), by Norman R. F. Maier and H. W. Reninger. Henry Hazlitt, the new editor of the *American Mercury* has written *The Anatomy of Criticism* (Simon and Schuster). This is set forth in dialogue form, Elder, Middleton and Young being the participants, representing the academic *versus* the conservative *versus* the youthful progressive points.

POETRY

A Preface to Poetry, by Theodore Maynard (Century) aims to teach appreciation in a non-pedantic way, and is written in an easy, familiar style. *Discovering Poetry,* by Elizabeth Drew (Norton) is supposedly for the layman. One needs a background of poetry to benefit most from this, a very excellent book.

FICTION

A form, largely prevalent in the 18th century, is treated in *The Epistolary Novel* (Univ. of Penn.) by G. F. Singer, who also continues its history. J. W. Beach's *The Twentieth Century Novel* (Appleton-Century) gives the rapid evolution of technique within the period, the large field of English and American fiction being covered. An excellent discussion of Joyce's *Ulysses* is included. An elementary book is E. C. Cook's *Reading the Novel* (Little, Brown).

GENERAL

Essays by members of the Graduate School of the University of Cincinnati are collected by Robert Shaffer in *Seventeenth Century Studies* (Princeton Univ. Press). J. W. Cunliffe in *English Literature in the Twentieth Century* (Macmillan) has produced a very useful book, unfortunately tainted of the text-book. Burton Rascoe's *Titans of Literature from Homer to the Present* (Putnam) is made up of thirty or more very informal essays, sometimes provocative. *The Great Tradition* is an interpretation of American literature since the Civil War, by Granville Hicks (Macmillan), the theme of which is that ''ours has been a critical literature, critical of greed, cowardice and meanness . . . It has also been a hopeful literature, touching again and again with a passion for brotherhood, justice and intellectual honesty.''

INDIVIDUALS

The year has been rich in carefully developed critical studies of figures in the literary field. There are several dealing with Shakespeare: Elmer E. Stoll's *Art and Artifice in Shakespeare* (Macmillan), this a study of the tragedies based on the critics ''non-romantic theory of criticism,'' an attempted contrast to the classic study of the same plays by Bradley, and S. A. Tannenbaum's *Shakespearian Scraps and other Elizabethan Fragments* (Columbia Univ.), an example of textual and ''graphologic'' criticism. The more or less anglicized Logan Pearsall Smith's *On Reading Shakespeare* (Harcourt) is an essay of about two hundred pages, free from pedantic criticism. Also there are G. R. Foss's *What the Author Meant* (Oxford Press) and *The Case for Tragedy* by Mark Harris (Putnam). There are also C. J. Sisson's *Thomas Lodge and Other Elizabethans* (Harvard), F. O. Bissell's *Fielding's Theory of the Novel* (Cornell), Killis Campbell's *The Mind of Poe and Other Studies* [of Poe] (Harvard); J. Hatfield's *New Light on Longfellow* (Houghton), showing the German influences upon the poet. Clyde K. Hyder has organized the varying opinions of an English poet, both in the subjects life and later in *Swinburne's Literary Career and Fame* (Duke Univ.), Henry Ladd's *The Victorian Morality of Art* (from a modern liberal's point) is an analysis of Ruskin's esthetic ideas (Long and Smith). R. A. Cordell's *Henry*

Arthur Jones and the Modern Drama (Long and Smith) is full of rather general estimates. The first volume interpreting Adelaide Crapsey (Bruce Humphries) and a very excellent one, is by Elizabeth Osborn. A small volume by W. W. Bancroft is *Joseph Conrad, his Philosophy of Life* (Stratford), attempts to show that the novelist's characters are all representative of a definitely systematized philosophy. The last book of this section is Adolph Gillis's *Ludwig Lewisohn, the Artist and His Message* (Duffield and Green.)

LIGHTER VEIN

Branch Cabell has written a clever volume in his *Special Delivery* (McBride), a series of ''form letters'' (sometimes essays of length) in answer to types of ''fair'' requests. George Jean Nathan's *Since Ibsen* (Knopf), in his usual vein of sometimes wearing cynical smartness, reveals a sense of discouragement over the progress of the theatre. In contrast to the atmosphere of these artificialities is Max Miller's *He Went Away for a While* (Dutton), the reflections of a San Francisco newspaperman who plays the hermit for a few months. Short essays of appreciation of the simple things of life are found in *How to be Happy on Nothing a Year,* the author of which is Charles A. Davis (Bobbs). Charles S. Brooks, whose familiar essays are based upon travel, has now produced *Italian Winter* (Harcourt). America's dean of essayists Agnes Repplier, has compiled *To Think of Tea!* (Houghton) an anthology from a broad survey of literature on the subject of tea. Perhaps the volume best obeying the rules of familiar essay writing is *Imitation* (Harvard) by Charles H. Grandgent, author of similar delightful collections. And from America's lighter essayist's writings has been culled *Fifth Avenue Bus, an Excursion among the Books of Christopher Morley* (Doubleday). A. Edward Newton, collector of bibliographical rarities and writer thereon, has to his credit another volume of informal essays on books and authors, *End Papers* (Little, Brown).

MORE SERIOUS

The late Oscar W. Firkins' *Selected Essays,* and *Letters and Notes* (Univ. of Minnesota), are rich in intellectual humor. Martin Schütze has one theme in his *Academic Illusions* (Univ. of Chicago) which would be much frowned upon by many orthodox scholars: that for the student, even the graduate scholar vital contact with literature itself should outweigh such studies as linguistics, and deadly criticism. The late Anne C. E. Allinson has left a volume of *Selected Essays* (Harcourt), autobiographical, literary philosophical, educational. Another anthology of essays has been compiled by K. B. Taft and others, *Contemporary Opinions* (Houghton), all very recent commentaries on present social structure and intellectual life, by a variety of keen thinkers. Similar to this is *Challenging Essays in Modern Thought* (Century) edited by J. M. Bachelor and R. M. Henry.

ENGLISH LANGUAGE AND LITERATURE

By Albert Croll Baugh

Professor, University of Pennsylvania

GENERAL

The present survey of American research in the field covered, like its predecessors, is selective. Many studies concerned with details too technical for the layman are omitted although they are often of considerable importance to the philologist and the literary historian. A complete list of such contributions will be found in the author's bibliography in the March supplement to the *Publications* *of the Modern Language Association (PMLA).** The reader should also consult J. F. Willard's "Progress of Medieval Studies in the United States" *Bulletin No. 11* (Boulder, 1933), Hardin Craig's "Recent Literature of the English Renaissance" *(SP)*, and L. I. Bredvold's "English Literature, 1660-1800: A Current Bibliography" *(PQ)*, the last two of which include foreign as well as American work.

THE ENGLISH LANGUAGE

The most important book of the year in the field of linguistics is Leonard Bloomfield's *Language.* It represents a complete rewriting of an earlier book and gives the best available account of the phenomena of language and of current linguistic theory. A useful survey of other recent work is given by Kemp Malone in "Some Linguistic Studies of 1931 and 1932" (*MLN*). In the field of experimental phonetics C. E. Parmenter and his associates have continued their studies with "The Influence of a Change of Pitch on the Articulation of a Vowel" *(Lang.)* and "An Experimental Study of Accent in French and English" *(PMLA).* C. M. Lotspeich has published a valuable paper on "Germanic Strong Verbs of Class VII" *(JEGP).* W. Matthews in "Holtrop's English Grammar" *(RES)* draws evidence for some English pronunciations in the Eighteenth century from a Dutch grammar of about 1780, and Harry M. Ayres describes the interesting features of "Bermudian English" *(Amer. Speech).* Samuel Moore, the editor of the new *Middle English Dictionary* which is in preparation, gives a report on the work done during the year, and Sir William Gaigie has brought out a further instalment of his *Dictionary of the Older Scottish Tongue.* The general reader will perhaps be interested in R. L. Ramsay's "Taking the Census of English Words" *(Amer. Speech)* in which he arrives at the total of about 240,000 main words.

GENERAL LITERATURE

English and American fiction is surveyed in an interesting way by Pelham Edgar in *The Art of the Novel, from 1700 to the Present Time.* The second volume of Stith Thompson's monumental *Motif-Index of Folk-Literature* (Indiana) has appeared with gratifying promptness. Theodore Maynard's *Preface to Poetry* is a popular exposition of the nature of poetry in form and content. N. R. F. Maier and H. W. Reninger discuss *A psychological Approach to Literary Criticism.* Among treatments of general questions mention may be made of Ruth Mohl's *The Three Estates in Medieval and Renaissance Literature* (Columbia) and Sir William Craigie's Alexander Lectures at the University of Toronto on "The Northern Element in English Literature."

OLD ENGLISH LITERATURE
(450-1150)

Ruby Davis has examined the scope of "Bede's Early Reading" *(Speculum).* Kemp Malone has published further notes on passages in the text of *Beowulf* and "On King Alfred's Geographical Treatise" *(Speculum).* He has also discussed "The Frumtings of Widsith" *(Eng. Studies)* and "The Suffix of Appurtenance in Widsith" *(MLR)*, questions growing out of his edition of the poem. F. P. Magoun in "Cynewulf, Cyneheard, and Osric" *(Anglia)* offers an analysis and interpretation of the famous Cynewulf and Cyneheard story in the *Anglo-Saxon Chronicle.* Theodor Braasch's *Vollstnädiges Wörterbuch zur sog. Caedmonschen Genesis* is a complete glossary of all forms in *Genesis A* and *Genesis B.* Sister Mary Angelica O'Neill has published a dissertation on *Elegiac Elements in Beowulf* (Cath. Univ. of Amer.). Of more interest to the layman is Harry M. Ayres' *Beowulf: A Paraphrase.*

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*Periodicals are cited under the following abbreviations, the reference being always to the volume for the year covered by this review:—*PMLA, Publications of the Modern Language Association of America; MP, Modern Philology; MLN, Modern Language Notes; MLR, Modern Language Review; JEGP, Journal of English and Germanic Philology; SP, Studies in Philology; PQ, Philological Quarterly; RES, Review of English Studies; RR, Romanic Review.* Titles appearing as these or in the publications of universities are followed where possible by the name of the university.

It is a skillful enlargement of the poem with much background material woven in from literary and archaeological sources, the sort of material that would have been familiar to the poet's contemporaries.

MIDDLE ENGLISH LITERATURE (1150-1500)

General Questions. — Important general questions affecting medieval literature have been the subject of recent consideration. J. S. P. Tatlock's presidential address before the Medieval Academy, "The Middle Ages—Romantic or Rationalistic" (*Speculum*), lays just emphasis upon the latter characteristic. J. M. Campbell in "Patristic Studies and the Literature of Medieval England" (*ibid.*) urges the great importance of patristic writings to the student of medieval literature, although he goes too far in thinking that competent scholars have not appreciated this importance. George R. Stephens has attempted to define more accurately *The Knowledge of Greek in England in the Middle Ages* (Pennsylvania). William O. Wehrle traces *The Macaronic Hymn Tradition in Medieval English Literature* (Cath. Univ. of Amer.) and Harry Caplan discusses "Classical Rhetoric and the Medieval Theory of Preaching" (*Class. Phil.*). Tatlock has collated several allusions to "Muriel: The Earliest English Poetess" (*PMLA*) showing that a woman of this name had something of a reputation as a poet at the beginning of the Twelfth century. J. E. Wells has published a *Fifth Supplement to A Manual of the Writings in Middle English.* Hope Emily Allen, who is engaged on an intensive study of the *Ancren Riwle,* has shown that "The Localization of Bodl. MS. 34" (*MLR*) in Hereford rests upon a false premise. Henry B. Hinckley in "The Date of The Owl and the Nightingale: Vivian's Legation" (*PQ*) supports his belief that the poem is to be linked with the embassy of Cardinal Vivian to Scotland and Ireland in 1177. Lois Borland has published the evidence justifying her thesis (Chicago) that Herman of Valenciennes' Bible is an important source of the Middle English *Cursor Mundi.* Her article, "Herman's Bible and the Cursor Mundi" *(SP)*, shows that about a fifth of the English poem is based directly on this French original. The romance of *Eger and Grime* has been edited by J. R. Caldwell (Harvard), and A. H. Krappe has continued his study of "The origin of Arthur and Gorlagon" *(Speculum).*

Chaucer.—The long awaited Cambridge edition of Chaucer, *The Complete Works of Geoffrey Chaucer,* edited by F. N. Robinson, has appeared with admirable notes and introductions. The American search for records of the Chaucer family under the direction of Professors Manly and Rickert has produced a few new items. In "Chaucer's Grandfather in Action" *(LTLS)*, Miss Rickert shows Robert Chaucer in a lawsuit before the Exchequer of Pleas touching on business matters, and in "Elizabeth Chausir, a Nun at Barking" *(ibid.)* she shows that the Elizabeth Chaucy for whose admission to Barking John of Gaunt paid a large sum in 1380 was listed as Elizabeth Chausir there in 1397. The important question of Thomas Chaucer's relation to the poet is gradually being cleared up. Albert C. Baugh in "Thomas Chaucer, One Man or Two" (*PMLA*) prints documents showing that the Thomas Chaucer of the London Hustings Roll, whom William Chaumbre calls *consanguineus,* is identical with the reputed son of the poet. The most important discovery, however, is reported by John M. Manly in "Thomas Chaucer, Son of Geoffrey" (*LTLS*). This concerns a lawsuit of 1396 in which Thomas Chaucer, esquire, is designated as the son of Geoffrey Chaucer, esquire, thus proving that Thomas was regarded as Geoffrey's son during the poet's lifetime. Carleton Brown in "The Evolution of the 'Marriage Group'" (*PMLA*) shows on the evidence of the MSS. that Chaucer himself shifted the tales making up this group. Among notes interpreting Chaucer's works may be mentioned Walter H. French's "The Meaning of Chaucer's Envoy to Scogan" (*PMLA*), pointing out that the unusual interpretation unduly stresses the last few lines and ignores the theme of the greater part of the poem—Chaucer's declining to intercede in Scogan's behalf in the quarrel with his lady.

Drama.—One of the most important works of American scholarship during the year is Karl Young's *The Drama of the Medieval Church* in which the full development of the liturgical drama is expounded with authority and illustrated by a full citation of texts. The same author in "An Interludium for a Gild of Corpus Christi" (*MLN*) prints the certificate of 1389 returned by the gild of Corpus Christi at Bury St. Edmunds, mentioning an *interludium de Copore Christi* maintained by its members. Chester G. Curtiss makes a close study of "The York and Towneley Plays on The Harrowing of Hell" *(SP)* and shows that the Towneley play is based upon a text of York superior to the extant version and closer to its source, the English *Gospel of Nicodemus.*

Romance.—In the field of romance a useful work is Jane D. Harding's *The Arthurian Legend: A Check List of Books in the Newberry Library.* R. S. Loomis has published an interesting article maintaining "The Irish Origin of the Grail Legend" (*Speculum*) and one on "The Visit to the Perilous Castle: A Study of the Arthurian Modifications of an Irish Theme" (*PMLA*). J. S. P. Tatlock has made a minute examination of the validity of the evidence in "The English Journey of the Laon Canons" (*ibid.*), establishing its trustworthiness. Nellie S. Aurner's "Sir Thomas Malory—Historian" (*PMLA*) draws analogies between features of the *Morte D'Arthur* and contemporary affairs. Albert C. Baugh in "Documenting Sir Thomas Malory" (*Speculum*) publishes a score of documents connected with charges brought against Malory and showing him also in several new conflicts with the law.

MODERN ENGLISH LITERATURE (SINCE 1500)

General Studies.—"Recent Publications: Studies in the Sixteenth and Seventeenth Centuries" (*SP*) is a survey by A. C. Howell and R. B. Sharpe. Carroll Camden has written an account of "Astrology in Shakespeare's Day" (*Isis*). D. T. Starnes in *Sir Thomas Elyot and the "Sayings of the Philosophers"* (Texas) traces various works reporting the "dictes and sayings" of philosophers and others in England from the Middle Ages to the end of the sixteenth century, with special reference to the works of Elyot containing such matter and Elyot's influence on subsequent compilations. D. C. Allen, "The Classical Scholarship of Francis Meres" (*PMLA*), shatters Meres' reputation as a classical scholar by identifying his immediate or ultimate sources in quotation-books and compendia. Margaret Hearsey discusses "Sidney's Defence of Poesy and Amyot's Preface in North's Plutarch: A Relationship" (*SP*), showing Sidney's indebtedness in certain trends of thought to Amyot's preface. "The Uprising of the Commons in Sidney's Arcadia" (*MLN*) by W. G. Zeeveld suggests that in the original version Sidney was protesting against the French marriage of Elizabeth. D. T. Starnes, "Barnable Riche's 'Sappho Duke of Montona': A Study in Elizabethan Story-making" (*SP*), assembles a remarkable series of parallels from various sources used by Riche.

Spenser still enjoys great popularity with American investigators. Ray Heffner in "Did Spenser Die in Poverty?" (*MLN*) feels that criticism has gone too far in discounting the circumstances of the poet's death. Raymond Jenkins, "Spenser at Smerwick" (*LTLS*), offers evidence that Spenser was an eye-witness to the surrender of Fort del Ore, in which Lord Grey's good faith has been questioned. H. G. Lotspeich has published *Classical Mythology in the Poetry of Edmund Spenser* (Princeton) and T. P. Harrison considers *Spenser and the Earlier Pastoral Elegy* (Texas). The *Cantos of Mutability* are the subject of two articles: Josephine W. Bennett's "Spenser's Venus and the Goddess Nature of the Cantos of Mutability" (*SP*) and Brents Sterling's "The Concluding Stanzas of Mutability" (*ibid.*). The Spenser Group of the

Modern Language Association announces the preparation of a volume of "Spenser Allusions" (*PMLA*).

Shakespeare.—Several Shakespearian studies of more than passing interest have recently appeared. Before speaking of them mention may be made of S. A. Tannenbaum's very full "Annual Bibliography of Shakespeariana for 1932" (*Sh. Assoc. Bull.*). E. E. Stoll's *Art and Artifice in Shakespeare* is a study in dramatic contrast and illusion. E. E. Willoughby has published an excellent monograph on *The Printing of the First Folio of Shakespeare,* in which, following bibliographical clues, he offers reasonable explanations for the interruption in the printing of the work which is believed to have occurred. J. Q. Adams in "The Quarto of King Lear and Shortland" (*MP*) presents convincing evidence that the quarto of this play was printed from a copy taken down in shorthand. Sina Spiker, "George Wilkins and the Authorship of Pericles" (*SP*), argues from a comparison of Wilkins' novel with the play that Wilkins was not one of the collaborators in *Pericles.* H. R. Walley, "The Dates of Hamlet and Marston's *The Malcontent*" (*RES*), concludes from circumstantial evidence that *Hamlet* preceded *The Malcontent* and that the similarities between the two plays must be interpreted in the light of this chronology. Marion H. Addington, "Shakespeare and Cicero" (*N&Q*), points out various parallels from John Dolman's translation (1561) of the *Tusculum Disputations.* Madeleine Doran, "Elements in the Composition of King Lear" (*SP*), works out successive stages in the composition of the play which she thinks can be inferred from peculiarities of the quarto text. Of more general interest is G. A. Plimpton's *The Education of Shakespeare,* an account of Elizabethan schoolbooks by a well-known collector of such books.

Dramatists and Others.—Shakespear's fellow dramatists and other literary contemporaries have yielded up a number of their secrets, biographical and other, to patient investigation. An important volume edited by C. J. Sisson called *Thomas Lodge and Other Elizabethans* contains new biographical data on Barnabe Barnes, Lodowick Bryskett, Sir George Buc, Thomas Lodge, and John Lyly, the work of the editor and some of his students. B. M. Wagner, in a communication entitled simply "Elizabethan Dramatists" (*LTLS*), publishes notes from parish registers and elsewhere concerning Lyly, Peele, Marston, Massinger, Tourneur, Wentworth Smith, and Lewis and William Wager. Arthur M. Sampley casts doubt on the validity of the "'Verbal Tests' for Peele's Plays" (*SP*) on which the attributions of J. M. Robertson and H. Dugdale Sykes rest. Chauncey E. Sanders in "Robert Greene and His Editors" (*PMLA*) argues against the genuineness of *Greene's Vision,* the *Groatsworth of Wit,* and the *Repentance,* at least in their entirety, and objects to relying on them for purposes of biography. Baldwin Maxwell, "Notes toward Dating Fletcher's *Wit without Money*" (*PQ*), calls attention to allusions in the play pointing to composition or revision in 1620. Johanne M. Stochholm has published a critical edition of *The Great Duke of Florence by Philip Massinger* (Bryn Mawr). Hugh MacMullen finds "The Source of Shirley's *St. Patrick for Ireland*" (*PMLA*) in a life of the saint by Jocelyn of Furness. Gertrude M. Sibley lists *The Lost Plays and Masques, 1500-1642* (Cornell). Two new anthologies of Elizabethan plays have appeared, one by Tucker Brooke and N. B. Paradise, the other by Hazelton Spencer.

Seventeenth Century. — Among seventeenth century studies two on Francis Bacon are of special significance: Charles W. Lemmi's *The Classic Deities in Bacon: A Study in Mythological Symbolism* and V. K. Whitaker's "Bacon and the Renaissance Encyclopedists" (Stanford Abstracts). Elizabeth Schneider's "Some Notes on Robert Gomersall" (*RES*) contains important new biographical material, including the date of his death, the identity of his wife, and his part in various public controversies. Three *Seventeenth Century Studies,* edited by Robert Shafer, concern Massinger, Ford and Samuel Butler. A new biographical study of Milton by Dora N. Raymond bears the title *Oliver's Secretary: John Milton in an Era of Revolt.* ''The Blindness of Milton'' (*JEGP*) has been diagnosed as glaucoma by the well-known oculist, W. H. Wilmer. D. C. Dorian takes up ''The Question of Autobiographical Significance in L'Allegro and Il Penseroso'' (*MP*). Rudolf Gottfried in ''Milton, Lactantius, Claudian, and Tasso'' (*SP*) adds Tasso's *Il Mondo Creato* to the sources of Milton's *Epitaphium Damonis. Lycidas* is treated at length by John C. Ransom in ''A Poem Nearly Anonymous'' (*Amer. Rev.*), R. R. Cawley's ''Sir Thomas Browne and His Reading'' (*PMLA*) gives a full account of Browne's literary background. Ricardo Quintana, ''The Butler - Oxenden Correspondence'' (*MLN*), offers new data, including an unpublished letter of Butler's, throwing some light on the date and interpretations of *Hudibras.* George Williamson traces ''The Restoration Revolt Against Enthusiasm'' (*SP*). Louis I. Bredvold's ''Notes on John Dryden's Pension'' (*MP*) shows that from evidence now completely available in the *Calendar of Treasury Books* it is possible to relieve Dryden of a number of charges commonly made against him; and Dorothy Burrows discusses *The Relation of Dryden's Serious Plays and Dramatic Criticism to Contemporary French Literature* (Illinois).

Eighteenth Century.—Bertha M. Stearnes has given an interesting account of ''Early English Periodicals for Ladies (1700-1760)'' (*PMLA*). J. D. Kern describes ''An Unpublished MS. of Charles Montague, Earl of Halifax (1661-1715)'' (*JEGP*). In ''Some Unpublished Letters of Richard Steele to the Duke of Newcastle'' (*MLN*) Rae Blanchard publishes twelve unprinted letters. Wm. D. MacClintock studies *Joseph Warton's Essay on Pope: A History of the Five Editions,* and George Sherburn contributes ''Two Notes on the Essay on Man'' (*PQ*). Goldsmith's plagiarisms continue to be revealed. R. S. Crane and Arthur Friedman record many parallels between ''Goldsmith and the Encyclopedie'' (*LTLS*) while R. W. Seitz, in ''Goldsmith and the Annual Register'' (*MP*), notes similar appropriations by Goldsmith for his *History of England in a Series of Letters* from Burke's ''History of the Present War'' in the *Annual Register* for 1758-61. Elizabeth E. Kent discusses *Goldsmith and His Booksellers* (Cornell). Mildred C. Struble is the author of *A Johnson Handbook* and R. J. Allen treats *The Clubs of Augustan London* (Harvard). ''Recent Works on Prose Fiction before 1800'' (*MLN*) are reviewed by Ernest Bernbaum. F. O. Bissell discusses *Fielding's Theory of the Novel* (Cornell) and Godfrey F. Singer gives a full account of *The Epistolary Novel: Its Origin, Development, Decline, and Residuary Influence* (Pennsylvania) *Thomas Southerne, Dramatist* is a Yale dissertation by J. W. Dodds. J DeLancey Ferguson's ''Burns and Jenny Clow'' (*MLN*) contains an unpublished letter throwing a little additional light on one of Burn's Edinburgh intrigues.

Nineteenth Century. — Among many interesting contributions to the study of nineteenth century literature space permits mention of only a few of the most significant. The Victorian Literature Group of the Modern Language Association has published the first annual ''Victorian Bibliography for 1932'' (*MP*). Margaret E Macgregor offers a dissertation on *Amelia Alderson Opie: Worldling and Friend* (Smith). Leslie N. Broughton, under the title *Wordsworth and Reed,* has collected the poet's correspondence with his friend and American editor, the Professor of English at the University of Pennsylvania. George M. Harper notes ''The Crisis in Wordsworth's Life and Art' (*Queen' Quar.*), the change in the poet's attitude toward nature and the divine occasioned by his brother's death in 1805. Earl L. Griggs has edited an important collection of *Unpublished Letters of Samuel Taylor Coleridge.* George H. Clarke considers ''Certain Symbols in The Rime of the Ancient Mariner'' (*ibid.*) while Elizabeth Nitchie offers ''The Mora of the Ancient Mariner Reconsidered'' (*PMLA*). Leonard Brown discusses ''The Genesis, Growth, and Meaning of Endymion'' (*SP*) and its relation to Keats's life. *An Odyssey of the Soul: Shelley's Alastor* is a Columbia dissertation by H. L. Hoffman. Elizabeth Schneider has published *The Aesthetics of William Hazlitt: A Study of the Philosophical Basis of His Criticism* (Pennsylvania). Two studies of Pater have appeared almost simultaneously: Helen H. Young's *The Writings of Walter Pater: A Reflection of British Philosophical Opinion from 1860 to 1890* (Bryn Mawr) and J. G. Eaker's *Walter Pater: A Study in Methods and Effects* (Iowa). *The Letters of Matthew Arnold to Arthur Hugh Clough* have been edited by H. F. Lowry. Among works on the novelists mention may be made of J. E. Baker's *The Novel and the Oxford Movement* (Princeton) and Anna T. Kitchel's *George Lewes and George Eliot: A Review of Records.* Flora V. Livingston has edited *Charles Dickens' Letters to Charles Lever.* A. L. Stevenson in ''Vanity Fair and Lady Morgan'' (*PMLA*) offers interesting evidence that Thackeray was not only influenced in minor ways by some of Lady Morgan's stories but that he also embodied not a little of her life and personality in the character of Becky Sharp. A. H. Able's *George Meredith and Thomas Love Peacock: A Study in Literary Influence* and Ruth Capers McKay's *George Gissing and His Critic, Frank Swinnerton* are both University of Pennsylvania's dissertations. Leslie H. Meeks has written a book on *Sheridan Knowles and the Theatre of His Time.* Thurman L. Hood has edited *Letters of Robert Browning Collected by Thomas J. Wise. Swinburne's Literary Career and Fame* by C. K. Hyder is an account of the poet's critical reputation.

Twentieth Century.—J. W. Cunliffe has published a fairly comprehensive survey of *English Literature in the Twentieth Century.* Leonard Brown writes on ''Our Contemporary Poetry'' (*Sewanee Rev.*) and Charles A. Girdler on ''The Literature of Young Ireland'' (*Queen's Quar.*). George W. Whiting's ''Conrad's Revision of Six of His Short Stories'' (*PMLA*) shows that the revision is slight and generally merely verbal. Henry Alexander discusses ''Galsworthy as Dramatist'' (*Queen's Quar.*) and H. W. Hausermann has considered ''Aldous Huxley as Literary Critic'' (*PMLA*). The disturbed state of the world has not affected either the quality or the quantity of American research in the field of literary history. The foregoing survey reveals an unusual number of significant contributions.

GERMANIC LANGUAGES AND LITERATURES

By F. W. Kaufmann

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GENERAL

In comparison to last year the activity in this field seems to have somewhat lessened. This may be partly due to the political situation in Germany and the absorption of energy and interest such an event necessarily imposes on those interested in things German; it is, however, for the greater part to be attributed to the cyclical turn of preparation and publication. Some of the best contributions of the scholars in our departments are of a more general nature or cover a larger field than that of Germanic languages and literatures.

Leonard Bloomfield gives in his voluminous book *Language* (Henry Holt) a thorough introduction to the principles of language structure and changes. Although considerable space is devoted to the Germanic languages, the scope of the book is rather universal, the material being taken from all languages which have been approached in a scientific way by reliable scholars. The topics discussed include phonetics, morphology, syntax, semantic changes, philological methods, dialect geography and others.

GRAMMAR

Eduard Prokosch's *Outline of German Historical Grammar* (Oxford University Press) offers to the student, especially to the prospective teacher of German, a brief introduction to the development of German sound and grammatical forms. Stress is laid, on the one hand, on the continuity of certain uniform tendencies of development and, on the other, on constant comparison with corresponding development in English. To an extent the book might be called an elementary comparative grammar of German and English. The German instances are very copious, comprising virtually 1000 words which are listed as the most frequent ones in several recent compilations.

The Linguistic Society of America published A. L. Rice's dissertation on *Gothic Prepositional Compounds* (University of Pennsylvania). This study tries to solve the question to what extent Wulfila's translation from the Greek original was mechanical, but it is limited to that part of the language which is in general assumed to be most independent. The author comes to the conclusion that the Gothic translator showed no subservience to the Greek, but was decidedly creative in the application of a still living and characteristic practice of translation into Germanic languages.

The same society sponsored the printing of C. D. Buchanan's dissertation on *Substantivized Adjectives in Old Norse* (University of Pennsylvania). The author's aim is to give a complete list of adjectives used as nouns in Old Norse and the corresponding forms in other Germanic dialects.

PHILOSOPHY AND LITERATURE

In a book entitled *Academic Illusions in the Field of Letters and Arts* (University of Chicago Press), Martin Schuetze, the Herder scholar, gives a survey of the currents of Ger man philosophy that had most influ ence on the study of literature. He reduces the variety of literary theo ries to two principal types, namel metaphysical theories in their ration alistic-classic and irrationalistic-ro mantic variants and factualistic theo ries. The third type, vitalistic-indi vidualistic naturalism, as developed b Herder, serves the author as a star ing point for his theory of the inte gral variables. In this way he a tempts to restore the right of indi vidual spontaneity, the irreducibl singularity of the personality. Prac tically he urges the immediate relie of the studies of literature from a that is merely mechanical, biblio graphical, philological, from all ob scuring, non-literary influences. H aims at a poet-artist scholar wh above all is trained in the superio understanding and discernment of lit erary style, a type of scholar whic most of our universities still fail t produce.

NOTKER TEUTONICUS

E. H. Sehrt and Taylor Starck hav undertaken a new and complete edi tion of the works of Notker Teutoni cus. This publication which is to sup plant the former rather insufficien edition by Paul Piper will appea under the title *Notkers des Deutsche Werke nach den Handschriften he rausgegeben* with Max Niemeye (Halle, Germany). The first volum containing Notker's translation an commentary of *Boëthius de Consola tione Philophiae I and II* has jus appeared. This critical edition fo lows the one manuscript which pre serves best Notker's elaborate syste of orthography and accentuation. Th statistical method has been efficientl utilized to restore the original tex as closely as possible.

DRAMA OF THE CHURCH

Karl Young provides in his tw volumes on *The Drama of the Me dieval Church* (Clarendon Press, Ox ford) a very comprehensive editio of dramatic texts of which only part had been edited before; but eve these publications were so scattere that it was almost impossible for any one not directly concerned with that phase of literature, to get a clear picture of it. The plays here published are those associated with the Resurrection and the Passion, or with the Nativity and others based on the Bible and on legends. As to their place of origin these plays are distributed over Western Europe and they are equally important for German as well as for English and Romance history of literature. Valuable information on the liturgy of the Roman Church and its dramatic elements precedes the texts, and the texts themselves are accompanied by a rich and scholarly dependable commentary.

SHAKESPEARE TRANSLATION

E. H. Mensel edited the first German translation of Shakespeare's Romeo and Juliet under the title *Die erste Romeo Übersetzung* (Smith College Studies in Modern Languages). In the preface he gives his reasons for attributing the collection of *Neue Probstücke der Englischen Schaubühne* in which this translation appeared to Deacon Grynaeus of Basel. He also establishes the Shakespeare edition of 1748, printed for Tonson and Draper, London, as the source for this translation of the year 1758.

METAPHOR IN POETRY

In a series of articles on *Metapher und Märchengastalt* (Publications of the Modern Language Association) M. Diez attempts to establish the metaphor as the smallest poetical unit. Anthropomorphism of animals, animism of natural phenomena, personification and demonization as the result of the combination of many single images to a uniform whole are according to this author the origin of poetry. He develops this thesis on the basis of the artistic fairy tales from Musaeus to Hauff.

TENDENCIES IN CHARACTERIZATION

G. C. Cast in a study entitled *Das Motiv der Vererbung im deutschen Drama des 19. Jahrhunderts* (University of Wisconsin Studies) finds that no consistent development of the inheritance motif can be traced in the 19th Century, that in the first half of the century the traditional and popular ideas were also prevailing in literature, whereas at the end of the century the Darwinistic point of view found access to the drama, thereby adding to the already existing tendency of a change from the active characters of the idealistic period to the passive characterization of the end of the century.

MANN CRITIQUE

H. J. Weigand wrote a study on *Thomas Mann's Novel Der Zauberberg* (Appleton-Century Company) in which he presents a critical exposition of Thomas Mann's style and the problems involved in this most discussed of Mann's novels; the study includes a discussion of Mann's interpretation of the German national character and its significance for the understanding of German problems during and since the World War.

THE LEARNED JOURNALS

The articles in the learned journals show a continued interest in philology; comparatively few contributions deal with the history of literature up to the classical period; a somewhat increasing activity is noticeable with regard to authors of the 19th Century and early 20th Century as Jean Paul, Brentano, Warner, Büchner, Fontane, Schnitzler, and others. There also seems to be a growing interest in the esthetic and philosophical approach to German literature, a welcome complement to the heretofore preferred philological method.

XXV. LITERATURE AND LANGUAGE

ROMANCE LANGUAGES AND LITERATURE

By Hirsch Hootkins

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GENERAL

Bibliographies.—Lists of works on French, Italian, and Spanish topics were as follows: ''L'Année Littéraire Mil-Neuf Cent Trent-Deux'' (*MLJ*)* by A. Schinz; ''Bibliographical Data on Voltaire from 1926 to 1930'' (*MLN*) by M. M. Barr; ''France and the Centenary of Goethe'' (*MLJ*) by H. E. Haxo; ''Italian Renaissance Studies in 1932'' (*SP*) by W. L. Bullock; ''Recent Italian Books'' (*Ital*) by J. Van Horne; ''Bibliography of Italian Studies in America'' (*Ital*) by J. E. Shaw; ''Contributions to a Tasso Bibliography'' (*PQ*) by J. G. Fucilla; ''Additional Bibliographical Notes on Moreto'' (*HR*) by A. M. Coe; and ''Bibliography of *La Prudencia en la Mujer*'' (*HR*) by A. H. Bushee. J. D. Harding published a book on *The Arthurian Legend, a Check List of Books in the Newberry Library* (Newberry Library, Chicago). A series of works on colonial topics of interest appeared in 1933. J. Peeters-Fontanas contributed *Bibliographie des Impressions Espagnoles des Pays Bas* (IFS); J. D. M. Ford and M. I. Raphael, *A Bibliography of Cuban Belles-Lettres* (Harv.); A. Torres-Rioseco, *Bibliografía de la Novela Mejicana* (Harv.); S. E. Leavitt, *A Tentative Bibliography of Bolivian Literature* (Harv.); and E. L. Tinker, *Bibliography of the French Newspapers and Periodicals of Louisiana* (AAS). Of value to teachers is the ''Bibliography of Moder Language Methodology in America fo 1932'' (*MLJ*) by G. P. Young. H P. Thieme published his invaluabl work *Bibliographie de la Littératur Française de 1800 à 1930*, three volumes (Paris, E. Droz).

Linguistics.—Two valuable article were ''An Experimental Study of Accent in French and English'' (PMLA), by C. E. Parmenter and A V. Blanc and ''The Influence of Change in Pitch in the Articulation o a Vowel'' (*L*) by C. E. Parmente S. N. Treviño, and C. A. Bevans. N S. Bement published a thorough-goin study on *Some Phonological and Syntactical Aspects of the Persistence o the French Present Subjunctive En ings -ons and -ez*, a reprint (Mich.) A good article is the ''Germanic Influence on Old French Syntax'' (*L* by U. T. Holmes and E. Vaugh Urban T. Holmes has an article o ''O. French *Fauterne;* O. Provença *Fauterna*'' (*RR*). A scholarly contribution is ''Zur Spanischen Grammatik'' (*HR*), a posthumous articl by Karl Pietsch. In the field of Spanish Linguistics L. O. Wright contributed an article on ''The Earlies Shift of the Spanish -Ra Verb fro the Indicative Function to the Subjunctive'' (*L*), and one on ''Th -Se Verb Form in the Apodosis'' (*HR*). R. K. Spaulding is th author of a study ''On the Introduction of the Preterite in U'' (*HR*), and O. K. Lundberg ''O the Gender of *Mar*'' (*HR*). W Meyer-Lübke has a note on ''Spanis *Toca* Mütze'' (*HR*). Students of dialect will welcome ''Some Aspects o Arizona Spanish'' (*Hisp*), by A. C Post. Portuguese is represented b ''The Preterite of Portuguese *Ter*'' (*HR*); and ''The Portuguese Fina -ao'' (*L*), both by E. B. Williams T. A. Jenkins contributed a shor note on the ''Origin of The Wor *Sedan*'' (*HR*).

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* Abbreviations: Harv., Harvard University Press; *JHS, Johns Hopkins Studies in Romance Literatures and Languages;* I. Esp., Instituto de Las Españas; I.F.S., Institute of French Studies; U.P., University of Pennsylvania; A.A.S., American Antiquarian Society; Mich., Michigan Academy of Sciences; *Hisp., Hispania; MLN, Modern Language Notes; PMLA, Publications of the Modern Language Association of America; PQ, Philological Quarterly; MLJ, The Modern Language Journal; MP, Modern Philology; L, Language; Ital, Italica; HR, Hispanic Review; RR, Romanic Review; SP, Studies in Philology; S, Speculum.*

FRENCH

Medieval.—P. J. Jones published his dissertation on *Prologue and Epilogue in Old French Lives of Saints before 1400* (UP). E. B. Williams edited *Aucassin et Nicolette, and Four "Lais" of Marie de France* (F. S. Crofts). "Balaam, Dux Tyri" (*MLN*), by A. Foulet; "*AOI* in the Chanson de Roland" (*PMLA*) by G. Frank; and "Réflexions Sur Les Concordances Numériques Entre *Pathelin* et *Les Faintes Du Monde*" (*RR*) by G. Bonno are three very well developed contributions. R. Levy wrote "*Fouke Fitz Warin,* Lexique Supplémentaire" (*PQ*). L. A. Vigneras has valuable articles in "Etude sur Jean Renart" (*MP*) and "Sur Une Poésie de Thibaut de Navarre" (*MLN*). Three more articles deserving mention were "To Whom Were Dedicated the *Fables* of Marie de France" (*MLN*) by S. Painter; "The *Folie* of Huon de Bordeaux" (*SP*) by L. M. Levin; and "The Background of Peire D'Alvernhe's *Chantarai D'Aquest Trobadors*" (*MP*) by W. T. Pattison.

Sixteenth Century.—The publications of interest on the Sixteenth century were "A Sixteenth Century French Play Based on the *Chastelaine de Vergi*" (*MLN*) by L. E. Dabney; "The Group of the *Dames Des Roches* in Sixteenth Century Poitiers" (*PMLA*) by A. H. Schutz; "Le Livre De Maistre Regnard et De Dame Hersant Sa Femme" (*RR*) by A. E. Lincoln.

Seventeenth Century.—Two books and four articles were of interest for students of the Seventeenth century. G. Boas published *The Happy Beast in French Thought of the Seventeenth Century* (JHS), and M. F. Chevalier his book on *A Dramatic Adaptation of Rabelais in the Seventeenth Century* (JHS). R. Talamon contributed an interesting article on "Deux Epigrammes de Boileau" (*MLN*) and L. M. Richardson on "The *Conférences* of Theophraste Renaudet" (*MLN*). "The *Discours De La Méthode* and the Spirit of the Renaissance" (*RR*) by B. M. Woodbridge and "Une Source du *Décor* de Racine" (*MLN*) by M. Baudin, were good articles.

Eighteenth Century.—G. R. Havens published his work on *Voltaire's Marginalia on the Pages of Rousseau.* This period was also represented by "The Success of Bruey's *Avocat Patelin* in the Eighteenth Century" (*MLN*) by C. D. Brenner; "The First Edition of *Candide*" (*MLN*) by N. L. Torrey; "Baculard D'Arnaud and His Usurer" (*MLN*), by G. L. van Roosbroeck; "The Manuscript of Jean Meslier's *Testament* and Voltaire's Printed *Extrait*" (*MP*) by I. O. Wade, which contains excellent bibliographical material; and "Unpublished Letters of Pierre Bayle" (*RR*), continued from 1932 by G. L. Gerig and G. L. van Roosbroeck.

Nineteenth Century.—R. L. Hawkins published *Newly Discovered French Letters of the Seventeenth, Eighteenth, and Nineteenth Centuries* (Harv), a work well reviewed by C. R. D. Miller (*PQ*). "Jean Bodel and Romain Rolland" (*MLN*) by G. M. Fess is a welcome contribution. G. Jasper contributed "The Influence of Flaubert's Travels in the Orient on the Last Edition of *St. Antoine*" (*MLN*). E. Melcher published two very interesting articles: "Flaubert and Henry Monnier: A Study of the *Bourgeois*" (*MLN*), and "A Romantic Parody by Henry Monnier" (*RR*). A valuable contribution is "La Couleur *Normande* de Madame Bovary" (*PMLA*) by J. Canu. Interesting and able contributions were: "Conversation in the Writings of Mme. de Staël" (*PMLA*) by M. Bloom, and "André Gide, the Critical Novelist" (*MLJ*) by A. J. Dickman. Short but interesting notes were contributed by B. A. Facteau, "Note on Chateaubriand's *Atala*" (*MLN*); G. N. Henning, "Consacrée au Repos" (*MLN*); A. Schafer, "Louis Salles, Parnassian Petrarch" (PQ); A. G. Canfield, "Notes on Lovenjoul's *Histoire Des Oeuvres De H. De Balzac*" (*MLN*).

Contemporary literature is represented by S. Cros' "Salavin" (*MLJ*).

ITALIAN

Dante.—Students of Dante will welcome the revised edition of *La Divina Commedia* by C. H. Grandgent (Heath & Co.). J. B. Fletcher published a prose translation of the *Divine Comedy* (MacMillan) and an important article ‘‘Dante’s *Image* In The Sun’’ (*RR*). H. D. Austin contributed three very good interpretative articles: ‘‘Aurea Justitia’’ (*MLN*); ‘‘Heavenly Gold; a Study of the Use of Color in Dante’’ (*PQ*); ‘‘Parallel or Coincidence?’’ (*SP*). A scholarly presentation is ‘‘Equicola’s Knowledge of Dante’’ (PMLA) by C. P. Merlino. A welcome contribution is ‘‘Dante E Francesca da Rimini’’ (*Ital*) by D. Vittorini. Aside from articles on Dante, the field of Italian is represented only by a note by J. G. Fucilla, ‘‘Bricciche Ariostesche’’ (*Ital*).

SPANISH

Medieval.—K. H. Vanderford contributed an interesting study in ‘‘Macías in Legend and Literature’’ (*MP*). E. K. Kane in ‘‘The Electuaries of the Archpriest of Hita’’ (*MP*) contributed a welcome article. ‘‘Some Notes on *La Comedia del Tirano Rey Corbanto*’’ (*PQ*) by A. Marinoni was the only contribution for the Sixteenth century.

Golden Age.—Students of Cervantes will find ‘‘El Idioma de Cervantes’’ (*Hisp*) by S. L. M. Rosenberg; ‘‘Sobre el Pasaje Más Oscuro del *Quijote*’’ (*Hisp*) by O. Diaz-Valenzuela; and ‘‘The Education and Culture of Cervantes’’ (*HR*) by R. Schevill, valuable contributions. The drama of this period was represented by four competent articles: ‘‘Ideas de Lope de Vega Sobre El Lenguaje Dramático’’ (*HR*) by M. Romera-Navarro; ‘‘The Apollo and Daphne Myth as Treated by Lope de Vega and Calderón’’ (*HR*) by H. M. Martin; ‘‘Again the *Cuestion de Amor* in the Early Spanish Drama’’ (*HR*) by J. P. W. Crawford; and ‘‘*Virtudes Vencen Señales* and *La Vida Es Sueño*’’ (*HR*) by R. Schevill. W. J. Entwistle contributed a critical study of ‘‘Two Set-Pieces in the *Soledades*’’ (*HR*). M. Romero-Navarro, in ‘‘Citas Bíblicas en *El criticón* (*HR*), offered a list of allusions with their Vulgate originals.

Modern. — C. Barja published his book *Libros y Autores Modernos* (Los Angeles, Campbell’s Book Store ‘‘The Date of *Sancho Ortiz De L* *Roelas*’’ (*HR*) is the title of a contr bution by C. B. Qualia. Four admi able studies were devoted to Galdós ‘‘The Youthful Writings of Pér Galdós’’ (*HR*) and ‘‘Gleanings fro Galdós’ Correspondence’’ (*Hisp*) b H. C. Berkowitz; ‘‘Galdós’ Indebte ness to Cervantes’’ (*Hisp*) by J. Wa shaw; and ‘‘Introducción al Estud de la Primera Serie de los Episodi Nacionales de Pérez Galdós (*PMLA*) by C. Vázquez Arjona. good contribution is ‘‘Romanticism Spain with Special Reference to th Drama’’ (*MLJ*) by B. Young. M. Solano devoted a brief study ‘‘Frederico Balart — El Pieta d Dolor’’ (*Hisp*). E. H. Hespelt co tributed ‘‘Another Note on *El L* *drón*’’ (*MLN*).

Spanish America. — I. A. Leona contributed ‘‘A Great Savant of C lonial Peru: Don Pedro de Peralta (*PQ*); S. Cuthbertson, ‘‘George Tic nor’s Interest in Spanish-Americ Literature’’ (*Hisp*); R. E. Warne ‘‘A Recently Discovered First Ed tion’’ (*HR*); J. R. Spell, ‘‘The The ter in Mexico City, 1805-1806’’ (*HR* Truly welcome was A. Coester ‘‘Maelstroms, Green Hells, and Sent mental Jungles’’ (*Hisp*).

PORTUGUESE

This field was represented by ‘‘T Text of a Poem by King Denis Portugal’’ (*HR*), a critical study H. R. Lang; ‘‘A Portuguese Mysti Frei Thomé De Jesus’’ (*HR*) by F. G. Bell; and by the volume *Lette of the Court of John III, King Portugal* (Harv) edited by J. D. Ford and L. G. Moffatt.

COMPARATIVE LITERATURE

French Influence. — In this fie there appeared the following article ‘‘A Possible Source of Chaucer *Booke of The Duchesse—Li Regret Guillaume* by Jehan de La Mote (*MLN*) by C. L. Rosenthal; ‘‘Infl ence of the French Farce in *Henry* and *The Merry Wives*’’ (*MLN*) by L. Radoff; ‘‘The Reaction in Eigh eenth Century England to Rousseau Two *Discours*’’ (*PMLA*) by J.

Warner; a contribution by M. Hearsey, "Sidney's *Defense of Poesy* and Amyot's *Preface* in North's *Plutarch:* A Relationship" (*SP*); "Charles Reade and Montaigne" (*MP*) by A. M. Turner; "William Blake and Pierre Jean Jouve" (*RR*) by S. A. Rhodes; "William Cullen Bryant and Théophile Gautier" (*MLJ*) by J. S. Schick; "Voltaire's *Mahomet* as a Source of Lessing's *Nathan der Weise* and *Emilia Galotti*" (*MLN*), a welcome addition by F. O. Nolte; and "Monboddo and Rousseau" (*MP*) by A. O. Lovejoy. A good article by C. B. Qualia, "Corneille in Spain in the Eighteenth Century" (*RR*) was followed by "Additional Notes" (*RR*) by A. M. Coe. An interesting contribution came from A. G. Solalinde, "La Disputa del Alma y El Cuerpo" (*HR*). S. A. Stoudemire contributed "Gil y Zárate's Translation of French Plays" (*MLN*).

Italian Influence.—In this field A. Cameron published a volume on *The Influence of Ariosto's Epic and Lyric Poetry on the Work of Amadis Jamyn* (JHS). R. Gottfried contributed a well written article on "Milton, Lactantius, Claudian, and Tasso" (*SP*). An interesting note, "A Trace of Dante in Goethe's *Ilmenau*" (*MLN*) was the contribution of A. Steiner. D. P. Rotunda wrote on "The *Guzman de Alfarache* and Italian *Novellistica*" (*RR*). "The Vogue of Alfieri in Spain" (*HR*) was contributed by E. A. Peers.

Spanish Influence.—A curious article "Lope de Vega and Saturday Fasting" (*MLN*) came from R. E. Pike. H. Gregersen wrote "Ibsen and Echegaray" (*HR*). H. S. Hendrix wrote "Notes on Collections of Types, a Form of *Costumbrismo*" (*HR*). The book entitled *La Literatura Rusa en España* (I. Esp.) was published by G. Portnoff.

Miscellaneous.—Of interest to Medievalists were the following contributions: "The Middle Ages—Romantic or Rationalistic" (*S*) by J. S. P. Tatlock; "Utility and Philosophy in The Middle Ages" (*S*) by R. McKeon; "The Irish Origin of the Grail Legend" (*S*) by R. S. Loomis; "King Arthur and the Saints" (*S*) by C. G. Loomis; "Geoffrey and King Arthur in *Normannicus Draco*" (*MP*) by J. S. P. Tatlock; the notes "Monday as a Date of Medieval Tournaments" (*MLN*) by L. A. Vigneras and S. Painter. An article of general interest was "Littérature et Géographie" (*PMLA*) by J. Canu. H. C. Lancaster published a translation and adaptation of Chappuzeau's *Blindman's Buff* (*JHS*), and M. Brussaly the volume on *The Political Ideas of Stendahl* (IFS). I. H. Brown contributed "George Sand and Her Son Maurice" (*RR*). M. Barras published his work *The Stage Controversy in France from Corneille to Rousseau* (IFS). Two books which deserve attention are *Histoire de la Civilisation Française* (N. Y., Prentice Hall) by C. M. Des Granges and O. Fowles, and *Essais sur La Civilisation Française* (Paris, E. Droz) by H. P. Thieme. In this field Italian was represented by E. Goggio's "Italy and Some of Her Early American Commentators" (*Ital*) and "The Literary Court of the Conde de Lemos at Naples, 1610-1616" (*HR*) by O. H. Green. To Spain were devoted two articles: "Ibañez and Spanish Republicanism" (*MLJ*) by F. M. Kercheville, and "The Renaissance of Catalonia" (*MLJ*) by M. G. Carriols. Four articles dealt with problems of folk-lore. A. H. Krappe contributed "Notes on Spanish *Cuentos Edificativos*" (*HR*); "Queen Rose. The Origin of a Spanish Folk-Tale" (*SP*); and "The *Tuti-Nameh* in Spanish Folk-Lore" (*HR*). A most interesting article was the contribution of G. Moffatt in "Jean Ango: Life History of a Legend" (*RR.*)

XXV. LITERATURE AND LANGUAGE

LATIN LITERATURE

By John C. Rolfe

Professor, University of Pennsylvania

THE LOEB CLASSICAL LIBRARY

Dr. Loeb's Contributions. — The death of James Loeb has deprived classical studies of a strong friend and a distinguished representative, noted for his own excellent translations of French works on Greek Literature, the latest of which was published in 1931 (*see* American Year Book, 1932, p. 848), and for the foundation in 1912 of the Loeb Classical Library of which about 200 volumes in Greek and Latin have already been published or are in process of publication. His far-sighted project has been cordially welcomed both by classical scholars of distinction and by cultivated laymen.

The Future of the Library.—It is gratifying to learn that Dr. Loeb, besides liberal contributions to this work during his lifetime, has in his will, in addition to other generous benefactions to the classics, provided for the continuation of the series to the limit originally planned of approximately 375 volumes. The entire Library has been left to the President and Fellows of Harvard University with a fund to be known as the Loeb Classical Foundation to which the income from the sales of the books is to be added. When the Library is finished, the income from this fund will be used for the encouragement of research in Archaeology and in Greek and Latin Literature and for the publication of its results.

THE LATIN WRITERS

The passing of Vergil's bimillennium has not diminished the interest in the Mantuan bard. In *C. J.** (xxxviii, 124 ff.). G. McCracken writes on "Th Originality of the Copa"; Margare Kenney on "Those Surprising Georgics" (*id,* 243 ff.); S. Rosenberg o "Vergil in Ecuador" (*id,* 675 ff.) and T. Haardoff on "Virgil an South Africa" (*C. P.* xxviii, 128 f.) H. Fairclough maintains that *primi ab annis,* in Aeneid (ii, 87), means th earliest years of Sinon and not thos of the Trojan war (*C. W.* xxvi, 150) Other papers on the poet will appea under different captions. The approaching bimillennium of Horace i 1935 is discussed by W. A. Ellis i *C. J.* (xxviii, 643 ff.). T. Frank offer "An Interpretation of Cato, Agricultura, 136" in *A. J. P.* (liv, 162 ff.) R. M. Gummere writes on "Cicero i the Statehouse" (*C. J.* xxviii, 323) G. McCracken on "Tibullus, Messal and the Via Latina" (*A. J. P.* lii 344 ff.); K. Scott on "Statius' Adulation of Domitian" (*id,* liv, 247 ff.) Frank on "Seutonius' Life o Terence" (*id,* 269 ff.), showing tha Terence was not a Numidian; M Odgers on "Quintilian's Use o Earlier Literature" (*C. P.* xxviii, 18 ff.); T. Frank on "The Dates o Plautus' Casina and its Revivals" (*A. J. P.* liv, 368 ff.); R. Steele o "The Astronomica of Manilius (*i* liii, 320 ff.). "Suetonius, Nero 33,1 is discussed by H. Nutting (*C. W* xxvi, 151 f.) and J. Rolfe (*A. J.* liv, 362 ff.), and Plautus "Aulularia 561 ff." by H. Comfort (*id,* 373 ff. G. Whicker publishes *Vergilian* (Amherst, Mass., and American Cla sical League).

HISTORY AND BIOGRAPHY

Under the title *Rome and Italy* *the Republic* T. Frank publishes th first volume of *An Economic Surve of Ancient Rome* (Johns Hopkin Press). M. Reinhold gives us *Marc Agrippa* (Geneva, N. Y., 1933); Haywood, *Studies on Scipio African* (Baltimore, 1933); W. Greene, *Th*

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* Periodicals are abbreviated as follows: *A. J. P., American Journal of Philology; C. J., Classical Journal; C. P. Classical Philology; C. W., Classical Weekly; T. A. P. A., Transactions of the American Philological Association; U. C. P., University of California Publications in Classical Philology.* Titles of books and monographs are italicized. Those of periodical articles are put in quotation marks.

Achievement of Rome (Harvard Press, 1933). E. Sihler's *Cicero of Arpinum* has been reprinted by G. E. Stechert (New York, 1932). L. C. West writes on "The Economic Collapse of the Roman Empire" (*C. J.* xxxviii, 82 ff.); G. Hendrickson on "The Memoirs of Rutilius Rufus" (*C. P.* xxviii, 153 ff.); Eva Sanford on "The Speech of Maecenas in Dio" (*T. A. P. A.* lxiii, 88 ff.); M. Reinhold on "The Perusine War" (*C. W.* xxvi, 180 ff.) and on "A Contribution to Biographical Chronology" (*id,* xxvi, 172 ff., discussing the age of Vespasian at his death); J. Stinchcomb on "The Two Younger Tullii" (*C. J.* xxix, 441 ff.).

PALAEOGRAPHY AND TEXT CRITICISM

Olivia Dorman offers "A Further Study of the Letters of Symmachus, based on a new manuscript of the Florilegium Group" (*T. A. P. A.* lxiii, 45 ff.); H. Fairclough, an exhaustive critique of Sabbadini's "Variorum Edition of Virgil" (*id,* 206 ff.); Aline Abaecheri dates the "Lex Nemorensis" in the reign of Tiberius (*id,* 256 ff.); W. H. Alexander presents "Critical Notes on Seneca, Dial. I-VI" (*id,* 353 ff.); T. Broughton discusses "The War with the Homonadeis" supporting the manuscript reading *per Ciliciam* in "Tacitus, Ann. iii. 48" (*A. J. P.* liv, 134 ff.); W. A. Oldfather writes on "Apuleius, Metam. i. 19.12" (*id,* 367). H. Nutting discusses "Juv. iii, 86-98", and continues his "Notes on Lucan" in *C. W.* (xxvi, 54 and 145), and in *U. C. P.* (11, 9, 263 ff. and 11, 10, 277 ff.).

LITERARY CRITICISM

E. Rand discusses "The Art of Terence's Eunuchus" (*T. A. P. A.* lxiii, 103 ff.); H. Prescott, "Criteria of Originality in Terence" (*id,* 103 ff.); H. C. Hortmacher, "Persius as a Literary Critic" (*C. J.* xxviii, 276 ff.); *J. P.* Prichard, "Horace and Edgar Allen Poe" (*C. W.* xxvi, 129 ff.); T. Frank, "Cicero," in the Annual Lectures on a Master Mind (*Proc. British Acad.,* xviii); A. L. Keith, "Nature Imagery in Vergil's Aeneid" (*C. J.* xxviii, 591 ff.). Elizabeth Haight publishes *Romance in the Roman Elegiac Poets* (Longmans, Green). Eva Sanford writes on "Lucan and Civil War" (*C. P.* xxviii, 121 ff.); L. Post on "Terence and Menander" (*C. W.* xxvi, 33 ff.); O. Reinmuth on "Vergil's Use of *interea*" (*A. J. P.* liv, 323 ff.); J. Stinchcomb on "The Literary Interests of a Roman Magnate," discussing Quintus Cicero and his relation to Lucretius' poem (*C. W.* xxvii, 1 ff.).

ANTIQUITIES

Emily Cleland discusses "The Grotto of Apollo on Delos," maintaining that the gable roof is not extremely ancient (*C. J.* xxviii, 271 ff.); L. Born, "Roman and Modern Military Science" (*id,* xxix, 13 ff.); J. Spaeth, Jr., "State Supervision of Municipal Finances" (*C. W.* xxvi, 99 ff.); T. Frank, "Some Financial Legislation of the Sullan Period" (*A. J. P.* liv, 120 ff.) and "The Sacred Treasure and the Rate of Manumission" (*id,* liii, 360 ff.); S. Mohler, "Cicero's Legacies" (*T. A. P. A.* lxiii, 73 ff.); Lily Taylor, "Quirinius and the Census of Judaea" (*id,* liv. 120 ff.); R. Haywood, "Traces of Serfdom in Cicero's Day" (*id,* 145 ff.); Mary Johnston, "*Hospites Venturi* (*C. J.* xxviii, 197 ff.).

RELIGION AND MYTHOLOGY

K. Scott writes of "The Plinys on Emperor Worship" (*T. A. P. A.* lxiii, 156 ff.), N. DeWitt presents "Notes on the History of Epicureanism" (*id,* 166 ff.). A. Gordon discusses "The Origin of Diana", upholding the view that she was of Italic origin and came to Rome from Aricia about 550 B. C. (*id,* 177 ff.). C. Pharr writes of "The Interdiction of Magic in Roman Law" (*id,* 269 ff.); J. Stinchcomb of "Classical Mythology in Contemporary American Poetry" (*C. W.* xxvi, 81 ff.); W. Greene of "The Ritual Validity of the ludi scaenici" (*id,* 150 ff.); H. Meritt of "The Mythological Paradigm in Greek and Latin Poetry" (*A. J. P.* liv, 305 ff.).

MEDIAEVAL AND LATE LATIN

M. Ogle and Dorothy Schullian publish *Rodulfi Tortarii Carmina* as volume viii of *Papers and Monographs of the American Academy in Rome.* H Caplan writes of "Classical Rhetoric and the Mediaeval Theory of Preaching" (*C. P.* xxviii, 73 ff.); Eva Sanford of "De Disciplina Scholiarum (*C. J.* xxviii, 82 ff.); J. McDonald of "René Rapin, Seventeenth Century Vergilian" (*id,* 9 ff.). The Carnegie Endowment for International Peace adds to its Classical Series *A. Gentili, De Iure Belli libri III,* with a translation by J. Rolfe and a photographic reproduction of the edition of 1612 (Oxford, Clarendon Press, 1933).

GRAMMAR AND METER

G. Krapp publishes *The Paris Psalter and the Meters of Boethius* (Columbia Univ. Press, 1933). W. Kirk discusses "Adfatim, Fatisci, Fessus" (*A. J. P.* liii, 364 ff.); R. Geer, "Terentianus Maurus, Metrical Magician" (*C. J.* xxix, 33 ff.); A. Weston, "The Use of Aut", finding that it is not limited to the exclusive or corrective function (*id,* 47 ff.); C. Lynn, "The Descent of Grammar" (*id,* 104 ff.); H. Nutting writes of "The History of the Cum-construction" (*A. J. P.* liv, 29 ff.).

MISCELLANEOUS

F. Marsh writes of "The Gangste in Roman Politics" (*C. J.* xxviii, 16 ff.); B. Clough of "Nero's Ostia Project" (*C. W.* xxvi, 103); C Knapp of "Pliny the Younger an Will Rogers" (*id,* 103); R. M. Gum mere of "Socrates and the Printin Press," with reference to Benjami Franklin and the Classics (*id,* 57 ff.) C. Knapp presents further evidenc to show that "mummy wheat" wil not grow (*id,* 64). E. McCartne writes at length, and interestingly on "Weather Lore of the Sea" (*i* 9 ff., 17 ff., and 25 ff.). Catherin Wilson discusses "Historical Fictio for the High School Latin Class' (*C. J.* xxviii, 107 ff.); C. J. Cante "Roma, Quantum mutata ab illa" (*i* xxix, 85 ff.); G. Watkin, Jr., "Roma Trier" (*id.* 3 ff.); and E. Jenkins pub lishes an *Index Verborum Terentianu* (Univ. of N. Carolina Press, 1932 The list of "Classical Articles in Non classical Periodicals" is continued b J. Spaeth, Jr. and A. Pauli in *C. W* (xxvi, 71 ff., 79 ff., 143 ff., 182 ff. an xxvii, 22 ff., 29 ff., and 38 ff.). C Knapp prints a list of "Recent Doc toral Dissertations in America" i *C. W.* (xxvi, 185 ff. and 193 ff.).

GREEK LITERATURE

BY ROBERT CHISOLM HORN

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ART AND ARCHAEOLOGY

Among the recent works in archaeology are: *The Excavations at Dura-Europos,* ed. P. V. C. Bauer, M. I. Rostovtzeff and A. R. Bellinger, Preliminary Report of the Third Season of Work, and Preliminary Report of the Fourth Season of Work (Yale Univ. Press, 1932 and 1933); *Sardis,* Vol. VII, by W. H. Buckler and D. M. Robinson, Greek and Latin Inscriptions, Part I (E. J. Brill, Ltd., Leyden, 1932); *Corinth,* Vol. X, The Odeum, by O. Broneer (Harv. Univ. Press, 1932); and *Corinth,* Vol. I, Introduction, Topography, Architecture, by H. N. Fowler and R. Stillwell (Harv. Univ. Press, 1932). Th last two are published for the Ame ican School of Classical Studies a Athens. Besides these there are *Corpus Vasorum Antiquorum,* Unite State of America, Providence: Mus um of the Rhode Island School c Design, Fasc. I, by S. B. Luce (Har Univ. Press, 1933); and *Excavation at Olynthus,* by D. M. Robinson, Pa V, Mosaics, Vases, and Lamps; an Part VI, The Coins Found at Oly thus in 1931 (Johns Hopkins Pres 1933). Part VII, The Terracott Found at Olynthus in 1931, is a nounced for early publication. *Da dalus and Thespis,* Vol. III, by V

Miller, Painting and Allied Arts, completes this excellent work; this volume contains also complete indexes (Univ. of Missouri Press, 1933). *Greek Sculpture and Painting to the End of the Hellenistic Period,* by J. D. Beazley and B. Ashmole, is a reprint, with some changes, of the chapters on Greek Art in the *Cambridge Ancient History* (Macmillan, 1933). *Dura Studies,* by J. Johnson, is a doctoral dissertation on special topics connected with the excavations of Dura-Europos, in which Dr. Johnson took part (Philadelphia, 1932). *The Technique of Early Greek Sculpture,* by S. Casson (Oxford, Clarendon Press, 1933) and *The Origin of Chalcidian Ware,* by H. R. W. Smith, Vol. I, No. 3 of *Publications in Classical Archaeology* (Univ. of California, 1932), are specialized works of importance. *The Temple of Apollo at Bassae,* by W. B. Dinsmoor, is an achievement of scholarship (Metropolitan Museum Studies, 1933). *Hesperia,* Vol. II, Part I, the Journal of the American School at Athens, maintains the high standard of Volume I in giving the results of recent excavations. *Greek Coins,* by C. T. Seltman (Methuen, London, 1933) is one of the Handbooks of Archaeology. *Attic Vase-Painting,* by C. T. Seltman, No. 3 of the Martin Classical Lectures, promised in 1932 was published this year (Harv. Univ. Press). These two books are full of interest. *Minoan Art,* by E. J. Forsdyke, is the publication, with plates, of the annual lecture of the Henrietta Hertz Trust (Oxford Univ. Press, 1932). *Prehistoric Eleusis,* by G. E. Mylonas, is reprinted from *Eleusiniaka* (University of Illinois, 1932). *Greek Geometric Art,* by Anna Roes (Oxford Univ. Press, 1933) treats of the origin and symbolism of this art. A delightful and illuminating little work by one who knows his subject and of value to those who are not specialists in archaeology, is *The Humanistic Value of Archaeology,* by Rhys Carpenter, Vol. IV of the Martin Classical Lectures of Oberlin College (Harv. Univ. Press, 1933). *Greek Art,* by A. Fairbanks, is a worthy volume in the series of *Our Debt to Greece and Rome,* the only volume in this series published this year (Longmans, Green).

EDITIONS AND TRANSLATIONS

Among the important critical editions published within the last year are J. E. Harry's *Greek Tragedy,* Emendations, Interpretations, and Critical Notes, Vol. I, Aeschylus and Sophocles (Columbia Univ. Press, 1933) and L. R. Farnell's *The Works of Pindar,* Vol. II, Critical Commentary, and Vol. III, Text (Macmillan, 1932). If the range of the Greek scholar is broad enough to include the New Testament (there is no reason why it should not be), he will welcome these volumes: *Six Collations of New Testament Manuscripts,* by Kirsopp Lake and Silva New, which is No. 17 of the Harvard Theological Studies (Harv. Univ. Press, 1932); *The Acts of the Apostles,* A Critical Edition with Interpretation and Notes on Selected Passages, by A. C. Clark (Oxford Univ. Press, 1933) and *Recent Developments in the Textual Criticism of the Greek Bible,* by F. G. Kenyon (Oxford Univ. Press, 1933). *The Rockefeller McCormick New Testament* deserves mention here (Chicago Univ. Press, 1932). This sumptuous and scholarly work is in three volumes: Vol. I, Facsimile with Introduction, by E. J. Goodspeed; Vol. II, The Text, by D. W. Riddle; Vol. III, The Miniatures, by H. R. Willoughby. Although the manuscript is a work of artistic importance, purchased for its miniatures, the minuscule text of the Thirteenth Century is of interest to New Testament scholars.

Several of the plays of Aeschylus have been recently translated: *Aeschylus, the Prometheus Bound,* ed. with Introduction, Commentary, and Translation by G. Thomson (Cambridge Univ. Press, 1932); and *Aeschylus, Oresteia,* by C. H. Hitchcock (Bruce Humphries, Boston, 1932). Homer has a never-ending appeal; two recent translations of the Odyssey deserve mention: *The Odyssey Translated in Verse,* by J. W. Mackail, a revision of a translation published some years ago (Oxford, Clarendon

Press, 1932); and *The Odyssey of Homer*, by T. E. Shaw (Oxford Univ. Press, 1932), a book which has become very well known because of the remarkable personality of the translator.

In the Loeb Classical Library only three volumes were published in 1933: *Strabo*, Vol. VIII, by H. L. Jones; *Pausanias*, Vol. III, by W. H. S. Jones; and *Aristotle, Metaphysics*, Vol. I, by H. Tredennick. These appeared toward the end of last year: *Aristotle, Politics*, by H. Rackham; and *Select Papyri*, Vol. I, by A. S. Hunt and C. C. Edgar (Putnam).

LANGUAGE AND LITERATURE

A Comparative Grammar of Greek and Latin, by C. D. Buck, is a much needed work and by a scholar of high rank (Univ. of Chicago Press, 1933). *Language and Languages*, by W. L. Graff, is an introduction to linguistics (Appleton, 1932). *Etymological Studies in the Greek Dialect Inscriptions*, by H. F. Standweck, was published in Baltimore in 1932. In the realm of literature perhaps the most important work is *New Chapters in the History of Greek Literature*, Third Series, by J. D. Powell (Oxford, Clarendon Press, 1933), which treats of recent discoveries in Greek poetry and prose of the classical and later periods. Other works of interest are: *Sappho of Lesbos*, Her Life and Times, by A. Weigall (Stokes, 1932); *Aristophanes*, A Study, by G. Murray (Oxford Univ. Press, 1933); and *The Composition of Plato's Apology*, by R. Hackforth (Macmillan, 1933). Because of his great contributions to classical study, and particularly in the Homeric field, attention should be called to *Walter Leaf*, Some Chapters of Autobiography, with a Memoir by Charlotte M. Leaf (London, John Murray, 1932).

GREEK HISTORY

Special Spheres.—The investigation of special spheres of Greek history and the spreading of knowledge of Greek affairs in scholarly and critical as well as more popular books, has at present a very strong appeal. In the first group are: *A History of*
Greek Public Finance, Vol. I, by A
M. Andreades, Revised and Enlarge
Edition, Translated by C. N. Brow
(Harv. Univ. Press, 1933); *Athenia*
Tribal Cycles in the Hellenistic Ag
by W. S. Ferguson, No. 1 of th
Harvard Historical Monograph
(Harv. Univ. Press, 1932); *Athenia*
Financial Documents of the Fift
Century, by B. D. Meritt (Univ. o
Michigan Press, 1932); *Epirus*,
Study in Greek Constitutional Deve
opment, by G. N. Cross (Macmilla
1932); *History of Olynthus*, by Mab
Gude; *Early Civilization in Thessal*
by Hazel D. Hansen, and *Old A*
Among the Ancient Greeks, by Bess
E. Richardson. The last three a
published in the series entitled T
Johns Hopkins University Studies
Archaeology (J. H. U. Press, 1933
The Ephemerides of Alexander's E
pedition, by C. A. Robinson, Jr.,
an attempt in brief form to settle o
of the problems connected with Ale
ander's expedition, published in t
Brown University Studies (Bro
Univ., 1932). *Ancient Oil Mills a*
Presses, by A. G. Drachmann, w
published in Copenhagen in 193
Homer and Mycenae, by M. P. Ni
son, one of Methuen's Handbooks
Archaeology, is as full of interest
the other works of the author (M
thuen, London, 1933). The Oxfo
University Press published this ye
King Agis of Sparta and His Ca
paign in Arkadia in 418 B. C., by
J. Woodhouse, and *Greek Mercena*
Soldiers, by H. W. Parke.

Popular Histories. — Among t
more popular histories are: *Gre*
History, by M. L. W. Laistner (
C. Heath and Co., 1932); *The Lega*
of Alexander, by M. Cary, treati
of the history of the Greek wo
from 323 to 146 B. C. (The D
Press, 1932); and *The Discovery*
the Ancient World, by H. E. Burt
which contains a great deal of g
graphical material (Harv. Un
Press, 1932). *Out of the Past*
Greece and Rome, by M. I. Rosto
zeff, is very delightful (Yale Un
Press, 1933).

Inscriptions.—*A Selection of Gr*
Historical Inscriptions, by M. N. T
(Oxford, Clarendon Press, 1933) n

takes the place of the *Manual of Greek Historical Inscriptions* of Hicks and Hill, which held the field for so many years. In 1932 the same firm published this author's *Sidelights on Greek History.*

GREEK LIFE AND CIVILIZATION

Social and Scientific.—*Books and Readers in Ancient Greece and Rome,* by Sir F. G. Kenyon, is most interesting (Oxford Univ. Press, 1932). *The Greek View of Life,* by G. L. Dickinson, is published in a low-priced edition for students (Doubleday, Doran, 1933). A new volume of the Everyday Life Series is *Everyday Things in Classical Greece,* by M. and C. H. B. Quennell (Putnam, 1933). Readable and stimulating books on Greek Science are: *The Heroic Age of Science,* by W. A. Heidel (Williams and Wilkins, Baltimore, 1933); *Greek Astronomy,* by Sir Thomas L. Heath, Vol. X of the *Library of Greek Thought* (Dutton, 1932); and *Euclid's Elements,* by I. Todhunter (Dutton, 1933). The last mentioned book is one of the volumes in Everyman's Library.

Philosophy.—In the department of Greek Philosophy the most noteworthy book of the year is *What Plato Said,* by Paul Shorey (Univ. of Chicago Press, 1933). The following works deal with the three great philosophers of Greece: *Plato and His Dialogues,* by G. L. Dickinson (Norton, 1932); *Socrates,* by A. E. Taylor (Appleton, 1933); *The Socratic Problem,* by A. K. Rogers (Yale Univ. Press, 1933); and *Aristotle,* by G. R. G. Mure (Oxford Univ. Press, 1932). In lighter vein is *Philosophers in Hades,* by T. V. Smith (Univ. of Chicago Press, 1932).

SEMITIC LANGUAGES AND LITERATURES

By E. A. Speiser

Professor, University of Pennsylvania

ARCHAEOLOGICAL AND HISTORICAL STUDIES

Inscriptional Sources. — In the large field of Near Eastern studies, archaeological work continues to play an outstanding part, supplying as it does all our new inscriptional material. The area in question embraces not only those lands where the ancient Semitic languages and dialects were once spoken, but also Egypt and Anatolia; the former on account of the indubitable even though limited Semito-Hamitic linguistic contacts, and the latter because it employed for its languages the cuneiform script, together with numerous Sumerian and Akkadian expressions. Before listing, therefore, the principal publications of the year in Egyptology, Semitics, and Hittite philology, we shall give an account of the archaeological and historical studies that deal either individually or collectively with Egypt, Palestine and Syria, and Anatolia.

Oriental Institute.—J. H. Breasted gives a comprehensive account of the origin, aims, and accomplishments, of the Oriental Institute (University of Chicago Press). The numerous publications of that Institute which have appeared within the current year bear ample testimony to the wide scope and efficient organization of the Chicago center of Oriental studies.

Egypt.—The same author's stimulating study on *The Dawn of Conscience* (Scribner) stresses Egypt's contribution to the progress of human thought. W. F. Edgerton discusses the involved chronological problems of *The Thutmosid Succession* (University of Chicago Press). Another event worthy of notice is the appearance of a new Egyptological Journal *Mizraim* (Stechert), edited by J. N. Reich.

Palestine and Syria.—W. F. Albright studies the pottery of the fourth campaign of his, "Excavation of Tell Beit Mirsim" in the *Annual of the American Schools of Oriental*

Research (XIII, pp. 55-128). The varied contents of this annual, a publication which we shall have occasion to cite again, give a fair idea of the work that is being carried on under the sponsorship of the American Schools of Jerusalem and Baghdad. In the same volume E. A. Speiser reviews the new evidence bearing on "The Ethnic Movements on the Near East in the Second Millennium B. C." (pp. 13-54); the groups under discussion are the Hurrians, the Habiru, and the Hyksos. C. C. McCown presents the material on "The Goddesses of Gerasa" (*ibid,* pp. 129-166).

Mesopotamia.—H. Frankfort defends the antiquity of the much-discussed Sumerians in his challenging monograph on *Archaeology and the Sumerian Problem* (Chicago Press), in *Tell Asmar, Khafaje and Khorsabad* (*ibid*) he gives an account of the second season's work of the Chicago Iraq Expedition. Mrs. E. Douglas Van Buren contributes a valuable stylistic discussion on *The Flowing Vase and the God with Streams* (Schoetz). E. A. Speiser analyzes "The Pottery of Tell Billa" (*Museum Journal* XXIII, pp. 249-308). P. V. C. Baur, M. I. Rostovtzeff, and A. Bellinger deal with the important *Excavations at Dura-Europos* (Yale Press).

Anatolia.—Erich F. Schmidt contributes a second volume on the archaeological results from *Alishar-Hüyük* (Chicago Press).

PHILOLOGICAL STUDIES

Assyriology.—Old Akkadian texts discovered at Nuzi, which is otherwise known for its records of the Hurrian period, are discussed by Th. J. Meek in the previously mentioned *Annual* (pp. 1-12). The severe loss which American Assyriology sustained in the deaths of E. Chiera and R. P. Dougherty is only emphasized by the studies which appeared under their names during the year. Chiera's "Habiru and Hebrews" (*American Journal of Semitic Languages* XLIX, 116-124) will be invaluable to all students of this exceedingly difficult problem. Dougherty's posthumous volume entitled *Archives from Erech, Neo-Babylonian and Persian Periods* (Yale Press) shows the same painstaking workmanship that was characteristic of all the studies from the pen of that scholar. While on the subject of necrology, a tribute must be paid to J. Hoschander, Assyriologist and Biblical archaeologist, whose death cut short a very valuable scholarly career. He had been at work on a series of important historical problems, and it is hoped that his colleagues and students will cooperate in the publication of his manuscript material.

Hebraica and Judaica.—The astounding discoveries at Ras Shamra are destined to revolutionize much of our knowledge concerning early West-Semitic religion and language. While the latter was not strictly Hebrew, the dialect appears to have been sufficiently close to early Canaanite to be treated with this group. J. A. Montgomery has given us an illuminating series of notes to the "Mythological Epic Texts from Ras Shamra" (*Journal of the American Oriental Society* LIII, pp. 97-123). In the field of grammar we have W. Chomsky's translation of *David Kimhi's Hebrew Grammar* (Dropsie College). This important medieval study exercised a profound influence on many generations of grammarians, and Chomsky's critical translation makes it now available to a wider body of Hebrew students. E. A. Speiser continues his study of "The Pronunciation of Hebrew according to Origen's Transliterations in the Hexapla, Part III" in the (*Jewish Quarterly Review* XXIV, pp. 9-46). In the Talmudic field we have the first two volumes of J. S. Lauterbach's *Mekilta* (The Jewish Publication Society). Material of considerable importance will be found in the current volume of the *Hebrew Union College Annual* (Cincinnati).

Arabica.—*The Jewish Foundation of Islam* (Jewish Institute of Religion) is another stimulating study from the pen of C. C. Torrey.

New Testament Studies.—Here we need note only such works as are concerned with the Semitic (Aramaic) background of the *Gospels.* The existence of such a background, largely in a linguistic sense is strongly advocated by C. C. Torrey in *The Four*

Gospels (Harper). A different view is taken by B. W. Bacon in his posthumous work on *The Gospel of the Hellenists* (Holt).

Hittite Studies.—In this field, which is properly the province of Indo-European philology but which cannot be dissociated from Mesopotamian philology because of its related epigraphical background, one is happy to note the appearance of E. H. Sturtevant's *Comparative Grammer of the Hittite Language* (Linguistic Society of America). In less than a score of years Hittite philology has made such notable strides that a sound work such as this has become possible.

INDO-EUROPEAN LINGUISTICS

By J. A. Kerns

Professor, New York University

GENERAL

The following monographs and special studies should be noted: M. B. Emeneau, "A Note on the Development of IE Dental Groups" (*Language,* ix. 232-236); C. E. Parmenter, S. N. Treviño, C. A. Bevens, "The Influence of a Change in Pitch on the Articulation of a Vowel" (*ibid.* 72 ff., 171 ff.); Grace Sturtevant, *Indo-European Deiuos and Related Words* (Yale diss., 1932), and G. K. Zipf, *Selected Studies on the Principle of Relative Frequency in Language* (Harvard University Press, 1932).

HITTITE

The outstanding event of the year in this field was the appearance of E. H. Sturtevant's *Comparative Grammar of the Hittite Language.* Though a number of descriptive grammars of Hittite have been written, this is the first work to take up the whole of the phonology and morphology in its relation to the common ancestry of Hittite and Indo-European; its appearance marks the culmination of a long series of investigations carried on for many years past by Professor Sturtevant, most of these having appeared in the pages of *Language.* For the first time prospective students of Hittite have available in convenient form a thoroughly scientific treatment of the language, and there can be no doubt that the number of students and investigators will be largely increased in consequence. The same scholar has published during the year the special study "Archaisms in Hittite," (*Language,* ix, 1-11). Walter Petersen in his study "Hittite and Tocharian" (*ibid.* 12-34) advances the interesting thesis of a close relation between these two languages. C. F. and C. C. Carruthers, "More Hittite Words" (*ibid.* 151-161).

INDO-IRANIC AND GREEK

R. G. Kent edits with full commentary various recently discovered Old Persian Inscriptions in *Language* (ix, 35-46, 229-231). C. D. Buck's *Comparative Grammar of Greek and Latin* is the first manual of the subject to appear in English for twenty years and will be welcomed accordingly, although somewhat less detailed in its treatment of Latin phonology than R. G. Kent's *The Sounds of Latin* which appeared late in 1932. Both works will be found well adapted for the early stages of graduate study. Compare also C. W. Peppler, "Durative and Aoristic" (*Amer. Jour. Phil.* liv., 47-53).

ITALIC

Cf. L. H. Gray, "The Oscan Inscriptions of Tricarico and Anzi," (*Amer. Jour. Phil.,* liv, 274-277); G. K. Strodach, *Latin Diminutives in -ello/a and -illo/a* (Univ. of Pa., diss.); C. F. Bauer, *The Latin Perfect Endings -ere and -erunt* (Univ. of Pa. diss.); H. C. Nutting, "On the History of the Cum-Construction (*Amer. Jour. Phil.,* liv, 29-38).

GERMANIC

Cf. the following special studies: C. Selmer, "Palatalization and i-Vocalization of *l* in Present German Dialects" (*Germanic Review*, viii, 124-136); F. T. Wood, "The Genitive Case of the Gothic Personal Pronouns" (*ibid.* 276-280); C. M. Lotspeich, "Germanic Strong Verbs of Class VII" (*Ger. Phil.*, xxxii, 281-292); A. L. Rice, *Gothic Prepositional Compounds* (Univ. of Pa. diss., end of 1932); C. D. Buchanan, *Substantivized Adjectives in Old Norse* (Cornell diss.); G. T. Flom, "The Edinburgh Fragment of the Old Norwegian General Law of King Magnus IV (*Jour. Eng. Ger. Phil.*, xxxii, 196-202).

CELTIC AND SLAVIC

Cf. G. S. Lane, "The Germano-Celtic Vocabulary" (*Language*, ix, 244-264). Cf. G. S. Trager, "The Old Church Slavic Kiev Fragment: Its Accents and their Relation to Modern Slavic Accentuation" *Language Monograph*, xiii, March 1933).

LIBRARIES

By Beatrice Sawyer Rossell

American Library Association

FACTORS IN LIBRARY SERVICE

Growth of Demand.—The peak of library use during the depression was apparently reached in the early months of 1933 when reports from 61 sample libraries showed a gain of 41 per cent in the number of books borrowed compared with the same period in 1929. Between four and five million new readers have registered in public libraries since 1929, according to estimates of the American Library Association. These bring the total number of registered borrowers probably to between twenty-four and twenty-five million. No complete circulation figures for 1932-33 are available, but 400,000,000 seems a reasonably conservative estimate of the number of books borrowed. Heavy losses in circulation are now being reported by some large libraries like Chicago and Detroit, where tax delinquencies and crises in municipal finance have resulted in reduced book purchases and curtailed service. The Chicago public library reports 40 per cent of its reference questions must go unanswered because of its depleted book stock. The Detroit public library has introduced an annual service charge of twenty-five cents for each adult borrower to offset partially its decreased appropriation. Economies in administration which would assist in meeting increased demands with the same or decreased funds have been put into effect in most if not all libraries.

Libraries and the NRA.—While libraries as institutions not operated for profit need not come under the provisions of the National Industrial Recovery Act they are inevitably affected by codes regulating binders, publishers, booksellers and others. In view of present library budgets only the utmost care can prevent these codes from inflicting serious injury on both libraries and the industries with which they deal.

Standards. — New standards for public libraries adopted by the Council of the American Library Association in 1933 are published in the November 1933, *Bulletin* of the Association.

Citizens' Councils.—In April, 1933 the American Library Association was one of more than fifty national organizations recommending to their members participation in forming loca Citizens' Councils for Constructive Economy. Thirty-nine such councils have been organized to date and many cities are working to establish others.

LIBRARY EXTENSION

County Libraries.—In spite of the increased demands upon existing libraries, economic conditions resulted in an almost complete cessation of library establishment, serious financial difficulties for libraries that have given high grade service for years, and reduced state help and leadership at a time when it is most needed. It is encouraging to note, however, that the number of county libraries remained practically constant and that several demonstrations of county library service were carried on. Eight of the eleven Rosenwald County library demonstrations sustained their five-year programs while others continued temporarily on a basis of support below the demonstration level.

Need for Larger Units.—The need for larger units of service was realized more keenly than ever. A study of public administration of public library service, now under way at the Graduate Library School of the University of Chicago should contribute the solution of this problem. In Tennessee a project for library service to the region adjacent to Knoxville, is being considered. A plan for regional library service in Michigan has been set up by the Michigan State Library. New sources of revenue for libraries, as for other public services, is a recognized need. The chairman of the Louisiana Library Commission submitted to the State Tax Commission a plan for a complete state-wide library service based on an annual state expenditure of $2,000,000. It is receiving careful consideration. Pennsylvania renewed its appropriation for state aid for newly established county libraries.

National Park and Southern Libraries.—The "Plan of Development for National Park Libraries," prepared by the A.L.A. Committee on Libraries in National Parks as a result of three years of study, was approved by Secretary of the Interior Ickes on April 18. A long-time program for the extension of library service in the South was set up at a Conference of Southern Leaders held at the University of North Carolina.

Library Service Statistics.—A partial recount of people without local public library service, sponsored by the League of Library Commissions, shows that library establishment in 42 states has not kept pace with population growth during the past seven years, although the percentage of people without has been reduced. There are actually 1,208,502 more people without library service in these states in 1933 than in 1926, but the per cent without has been reduced from 43 to 38.

ADULT EDUCATION

Relief Work through Libraries.—Plans for adult education relief work through libraries, as part of the Federal relief work program, were outlined before the Council of the American Library Association during its meeting in October. Library participation has been included in the programs of a number of states, and plans for local library cooperation are being reported. A.L.A. headquarters is acting as a clearing house for information on library projects.

In Rural Areas.—The Oregon State Library has initiated a large-scale long distance readers' advisory service, in the preparation of non-credit reading courses for unemployed young people. Within six months, 441 students in all the rural counties were enrolled in courses in 116 different subjects. A panel discussion on "Rural and state-wide adult education and the library," arranged especially for state workers, was held during the A.L.A. conference in Chicago, with Benson Y. Landis, secretary of the American County Life Association, as leader. The place of the library in rural adult education was emphasized in the report on "Rural Adult Education," made for the American Association for Adult Education, and in a statement issued by the Committee on National Policies Affecting Rural Education of the American County Life Association.

EDUCATION FOR LIBRARIANSHIP

Library Schools.—The Council of the American Library Association adopted in October, 1933, qualitative minimum requirements for library schools presented by the Board of Education for Librarianship to replace quantitative standards adopted in 1925. In the fall of 1933 approximately 300 fewer students than in 1932 were reported enrolled in 31 library schools. Library school directors anticipate that the tendency to raise admission requirements, with emphasis on high scholarship and appropriate pre-professional study and the discriminating selection of a smaller number of students will provide for a better qualified personnel when the economic condition of libraries permits the employment of additional trained librarians. Despite the voluntary closing or suspension of courses in approximately forty institutions, the number of summer sessions in library science remains high; ninety were known to have been given in the summer of 1933.

Oversupply of Trained Librarians.—In view of the increasing unemployment among well qualified and experienced librarians, the Board of Education for Librarianship has continued to urge a reduction in the number of courses in library science, a more discriminating selection of students by the library schools with emphasis on high scholarship and desirable personal qualifications and the development in teacher-training institutions of courses in the use of books and libraries, in bibliography and other similar subjects, as a contribution to the education of teachers rather than of librarians.

Certification.—A revised *Summary of Certification Requirements for Librarians,* issued by the Board of Education for librarianship in March, indicated that in three states requirements for lower grade certificates had been raised, that three state library associations had adopted voluntary requirements and that seven other state library associations had special committees at work on certification.

RESEARCH

University of Chicago Studies.—Studies by the Graduate Library School of the University of Chicago now under way are as follows: the library in relation to public administration; college library standards of the North Central Association for the North Central Association survey; the distribution and use of reading materials in New York City and in South Chicago; comparative studies of subject interests and library circulation among corresponding occupational groups in the United States, England, and Germany; the history of Mohammedan scholarship and libraries; student reading in the College Residence Halls for Men and in the International House Library; public library service in Du Page County; relations of the 36-line Bible to the 42-line Bible; source book on the invention of printing; the general distribution of reading materials in the United States. Lists of theses submitted by candidates for advanced degrees in American library schools for the five years, 1928-32, and proposals submitted to the American Library Association for study and investigation from 1930-1932 appeared in the *Library Quarterly* for July and October, 1933.

Personal Requirements. — Results of a study of personnel requirements for library branches in relation to circulation made by the Washington Public Library are reported in the *Library Quarterly* for July, 1933.

Preservation of Books and Manuscripts.—The Huntington library, San Marino, California, is investigating the preservation of rare books and manuscripts and reports definite progress in combating book worms. This same library is having considerable success in identifying rare books and facilitating the use of stained or burned writings through the development of phototechnical processes.

Conserving Records.—The Bureau of Standards under the auspices of the National Research Council and the Carnegie Corporation of New York is carrying on extensive investigations in the field of conserving records.

Mechanical developments such as the "electric eye" used to record patrons entering the New York public library and books on film are receiving the consideration of librarians in the interests of greater economy and efficiency in operation.

Coöperative Cataloging. — Headquarters for the coöperative cataloging experiment, mentioned in THE AMERICAN YEAR BOOK for 1932 have been established at the Library of Congress.

A report of progress in the experiment will be found in the August, 1933, issue of the *Bulletin of the American Library Association.*

BIBLIOGRAPHICAL WORK

Projects "A" and "B," begun at the Library of Congress under grants from John D. Rockefeller, Jr., which ended last year, are being continued, the first with a grant of $20,000 from Congress and the second with general funds and the James B. Wilbur bequest.

World Manuscript Catalog.—Considerable progress has been made at the same library under the direction of Dr. Ernest Cushing Richardson in the preparation for a *Union World Catalog of Manuscript Books* and several studies in the method of such a catalog have been prepared. One of these, a demonstration experiment in the field of Spanish collections, includes, besides lists of Spanish manuscript collections and of printed catalogs of the same, a cumulated list of the manuscripts of eight small libraries. This, prepared by Professor H. A. Grubbs, has just been published.

Project "12."—Extensive additions have been made to the preparatory material for Project "12," a demonstration experiment in general coöperation in the field of religion, beginning with coöperative card cataloging, cooperative selection and purchase.

PUBLICATIONS

Outstanding publications of 1932-33 not mentioned last year include, in addition to those mentioned elsewhere in this article, *An Introduction to Library Science,* by Pierce Butler; *The Right Book for the Right Child; The College Library Building, Its Planning and Equipment,* by James T. Gerould; *The Periodicals Directory,* edited by Carolyn F. Ulrich; *A Fifteen-Year Program of Building Development; the Extension Program of the Public Library of the District of Columbia; The University Libraries,* by M. Llewellyn Raney; *Elementary School Libraries,* the twelfth yearbook of the Department of Elementary School Principals of the National Association; and *Who's Who in Library Service. Our Starving Libraries,* by R. L. Duffus, was in press when this article was written.

LIBRARY OF CONGRESS

Recent figures seem to indicate that the Library of Congress now heads the list of the world's libraries with a book collection numbering 4,477,431, maps and views numbering 1,265,116, and a music collection numbering 1,087,607. An appropriation bill passed in February provides for the continuation of the work of placing Decimal Classification numbers on Library of Congress cards in the Card Division. This work originated in a voluntary committee of the American Library Association.

COLLEGE AND UNIVERSITY LIBRARIES

Several important college library developments were reviewed in the December 15, 1932 *Library Journal* (following submission of THE AMERICAN YEAR BOOK article last year). The Stephens College library experiment now in progress will be found described in the May, 1933, issue of the *Bulletin of the American Library Association* and developments in the use of dormitory libraries at the University of Chicago in the *Library Quarterly* for January, 1933. An important recent development of significance to college and reference libraries and their patrons is the substantial reduction in prices of German scientific periodicals brought about through efforts of the American Medical Association and the American Library Association. Such reduction was imperative if many American libraries were to continue certain of their subscriptions.

SCHOOL LIBRARIES

Innovations in library service in secondary schools are reported in "The Secondary School Library," *Bulletin* (1932, No. 17), published by the United States Office of Education. "The Significance of the School Library," *Leads* (No. 10), issued by the Publicity Committee of the American Library Association, demonstrates the value of the school library by citing specific instances of service to students, teachers and parents.

AMERICAN LIBRARY ASSOCIATION

Officers. — Officers for 1933-34 elected at the 55th annual conference of the American Library Association are: Gratia A. Countryman, librarian, Public Library, Minneapolis, president; Louis Round Wilson, dean, Graduate Library School, University of Chicago, first vice-president; Ralph Munn, director, Carnegie Library, Pittsburgh, second vice-president; Matthew S. Dudgeon, librarian, Public Library, Milwaukee, treasurer. The conference was held Oct. 16-21 in Chicago with more than 3,000 of the Association's 11,500 members and a score of delegates from abroad present.

Council Action.—At the 1932 midwinter meeting the Council discussed constructive economy in government and passed resolutions on the reduction of public expenditures, increased demands for library service, and unemployment in the profession. At the annual meeting of the Association in 1933, the council approved passage as written of Senate Bill 1928 and H. R. 5853 of the Seventy-third Congress, first session (on copyright) reaffirmed its belief in the importance of strong state library agencies, indorsed the plan of setting up work relief projects for unemployed librarians in connection with state and community adult education and leisure time programs for the unemployed, adopted new requirements for library schools, and urged the elimination of politics from the organization and control of public libraries, national, state, and municipal.

Code of Practice for Publishers.—A code of practice for publication and sale of subscription books, formulated by representatives of the National Association of Book Publishers and the American Library Association, has been completed and printed in the January, 1933, *Bulletin of the American Library Association.*

Retirement Plan.—The American Library Association retirement plan for librarians went into effect April 1, 1933.

Newbery Medal Award.—*Young Fu of the Upper Yangtze,* by Mrs. Elizabeth Foreman Lewis, won the 1933 John Newbery medal, awarded annually by the Association's Section for Library Work with Children for the most distinguished contribution to children's literature of the preceding year.

Publications. — During 1933 the Association confined its publishing activities chiefly to books which would have some bearing on current library problems and on current national and international issues. Among new publications were: a series of five booklets entitled ''Exploring the Times,'' which included *World Depression—World Recovery,* by Harry D. Gideonse; *Collapse or Cycle?* by Paul Douglas; *Living with Machines,* by William F. Ogburn; *Meeting the Farm Crisis,* by J. H. Kolb; *Less Government or More?* by Louis Brownlow and Charles S. Ascher; *NRA, the New Deal for Business and Industry,* a bibliography compiled by Jerome K. Wilcox; *Current Problems in Public Library Finance; Replacement List of Fiction; Circulation Work in College and University Libraries; Popular Libraries of the World.* Two important new editions were *Simple Library Cataloging* and *The Library in the School.*

FUNDS FOR LIBRARY WORK

Grants to the following library schools were made by the Carnegie Corporation of New York for 1933-34: University of Denver School of Librarianship, $10,000; Emory University Library School, $10,000; Hampton Institute Library School, $14,000. A grant of $15,000 from the Carnegie Corporation enabled the A. L. A. Committee on Fellowships and Scholarships to make awards to eleven people for advanced study in 1933-34. A report of Carnegie gifts to libraries in 1931-32 was given in the January, 1933 issue of the *A. L. A. Bulletin.*

NEW BUILDINGS

The Enoch Pratt Free Library, Baltimore, was dedicated. The Edward L. Doheny, Jr. Memorial Library at the University of Southern California, the Deering Memorial Library at Northwestern University, Evanston, and the Myrtle Reed Library at the University of Denver were also dedicated during the year.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN ACADEMY OF ARTS AND LETTERS, 633 W. 155th St., New York City.

AMERICAN ACADEMY OF ARTS AND SCIENCES, 28 Newbury St., Boston, Mass.

AMERICAN BOOKSELLERS' ASSN., 35 E. 20th Street, New York City.

AMERICAN COUNCIL OF LEARNED SOCIETIES, 907 Fifteenth St., N. W., Washington, D. C.

AMERICAN LIBRARY ASSN., 520 N. Michigan Ave., Chicago, Ill.

AMERICAN NEWSPAPER PUBLISHERS' ASSN., 370 Lexington Ave., New York City.

AMERICAN PHILOSOPHICAL SOCIETY, Independence Sq., Philadelphia, Pa.

AMERICAN SOCIETY OF COMPOSERS, AUTHORS AND PUBLISHERS, 1501 Broadway, New York City.

AMERICAN SOCIETY OF NEWSPAPER EDITORS, Buffalo Evening News, Buffalo, N. Y.

ASSN. OF NATIONAL ADVERTISERS, 330 W. 42d Street, New York City.

ASSOCIATED PRESS, 383 Madison Ave., New York City.

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DIVISION XXVI

THE ARTS

ARCHAEOLOGICAL DISCOVERY

By Ralph VanDeman Magoffin

Professor, New York University

UNITED STATES

Algonkin Sequence in New York.—Further study on the earlier classification now sets the three periods thus: the First Period had no pottery, polished celts, copper, or worked shells; the Second Period is based on the Southwest; and the Third Period is local, with considerable admixture of Iroquois which later submerged the Algonkin culture.

Eskimos.—Investigation in the Bering Strait region has found evidence of a ''Golden Age'' development in Eskimo pre-history. Decorated objects of walrus ivory and utensils and implements of wood, whalebone, pottery, and stone in kitchen middens have made it possible for the Smithsonian Expedition to set three stages for Eskimo culture: I. Old Bering Sea; II. a transitional Panuk stage; and III. Modern. It should be noted that the new finds have added complexity rather than simplicity to the decision as to the whereabouts of the ultimate origin of the Eskimo.

ANATOLIA

Troy.—The University of Cincinnati expedition conducted by W. T. Semple and C. W. Blegen has shown in its second campaign (1933) that the Fifth City dates as transitional between the Early and the Middle Bronze Ages. Much more of the Sixth City has been laid bare, and a palaestra with thermae attached has been almost completely excavated.

CYPRUS

Bronze Age.—New evidence for the Bronze Age has been found by the Swedish Archaeological Expedition in the discovery of many carved ivories, painted vases of Mycenaean types, and gold ornaments of various kinds. Enkomi, the fortress of Nitovikla, and Ajios Jakovos are the sites where the proofs have been found showing that Cyprus was a great commercial center during the so-called prehistoric period. Gjerstad's opinion that Cyprus is the best link between East and West in the second millenium B. C. seems now well founded.

EGYPT

Abu Simbel in Nubia.—Four intact royal tombs of the Byzantine-Nubian period (5th-7th cent. B. C.) show an unexpected mixture of Christian and Pagan elements. Jewel-encrusted crowns of silver, lamps, and incense burners bear ram's heads, Christian crosses, the Pharaonic *atef,* and other symbols which belong to several widely variant religious ages. Notable is the discovery of the skeleton, *in situ,* of a Pharaoh on whose skull rests a massive crown of silver, between whose legs is his iron sword with silver hilt and scabbard, on whose right arm is a silver bracelet, and on whose left wrist is a bow guard of silver.

Tell el-Amarna.—The finds of the Egypt Exploration Society have been astonishingly rich. Photographic help from the air has made it possible to draw a plan of the heretic Pharaoh's "Holy City." Plaster casts have been found of the portrait heads of Akhenaten, Amenhotep III, and of Nefertiti, whose famous bust (found in 1912) is the prize of the New Museum in Berlin. Best of all, perhaps, is the new quartzite head of Nefertiti, who was the wife of Akhenaten and the mother-in-law of Tutankhamen, on which the guiding marks, in black ink, of the sculptor are still visible on the head, as is some of the red which still remains on the lips of the queen. Only a bit less valuable is the quartzite head (life size), of Akhenaten, an inlay relief portrait. Notable also is the small steatite group (six inches high) of a cynocephalous form of the god Thoth, with a seated priest, as *cantor,* at his feet.

Tutankhamen. — Four shrines of oak and cedar overlaid with gesso and sheet gold, the innermost containing a yellow quartzite sarcophagus with the mummy of the Pharaoh, all the shrines being beautifully decorated, are now finally on display in the Cairo Museum. There have now been assembled also all the objects necessary to make safe the Pharaoh's passage to the other world. Very intriguing are the boats which were to make Tutankhamen independent of the "celestial ferrymen," a heavenly labor union previously unknown; a granary full of grain, and strainers for the king's beer. The almost numberless pieces of funerary equipment preclude tabulation here.

GREECE

Athenian Agora.—Prof. Leslie Shear has continued with the greatest success his work in the Agora. Examination of a number of cisterns has shown that the area was occupied by private dwellings as early as the Sixth Century B.C. Many pieces of painted pottery found in the cisterns have added much to the history of Athenian ceramics. In one cistern were found ten more inscribed ostraca, thus adding to the three found last year. A great water channel with a stone floor has probably identified the route of an ancient street. A beautiful winged Nike and a head of Augustus as a young man, share honors as the two finest pieces of sculpture thus far found in the Agora. Other splendid pieces are: a Roman copy of a standing female figure, from a 5th century B.C. Greek original, portrait heads of the Roman emperors Claudius and Commodus, a statuette of the Phrygian god Attis, and a relief of a dancing girl resembling known statues of Maenads. A large number of inscriptions, of terra cotta figurines and molds, and hundreds of stamped amphora handles, a Mycenaean grave with three skeletons, and the site of the Bouleuterion, are part of the very many important finds of the year.

Corinth.—Excavation covering the last three years has gone steadily along. One of the most important pieces of new work has been the excavation by de Waele of what has turned out to be the Sanctuary of Asclepius and Hygieia. Votive offerings of patients, found in seven deposits, consist of figurines, small vases and metal objects, but the majority were parts of the human body done in terra cotta.

Eleusis. — Re-examination of this site by Kourouniotes and Mylonas has enlarged our knowledge of the entire area, especially of the Telesterion. The conclusion thus far as to its architecture is that it shows neither Cretan nor Egyptian influence.

Perachora.—Many new relics of early Greek art have been found by the Director of the British School at Athens, in the excavation of the Heraeum, *i.e.* a temple of Hera Limenia (Protectress of the harbor) at Perachora, a Sixth century B.C. temple on a headland not far west of Corinth, on the Corinthian Gulf. Ivories, pottery, vases, bronze statuettes of horses, lions, and doves, constitute the major part of the objects found.

ITALY

Ardea.—Dr. Alex Boethius of the Swedish Institute in Rome has studied the strata of the general area of this Latin city, and has found Villanovan sherds on bed rock (Earliest Villanovan village), Corinthian and black-figured Attic vases and sherds in the second level (the harbor town mentioned in treaties between Rome and Carthage), simple Fourth century B.C. houses in the third level (Roman *colonia adversus Volscos*), ceramic fragments of the Fourth and Third centuries B.C. (destruction by Samnites) in the fourth level, and the remains of Sullan rebuilding in the First century B.C. in the fifth, or top, ancient level.

Minturnae.—Continued excavations directed toward proving that the city was built on the pomerial plan have shown more than was expected. The Auruncian city of the Sixth century B.C. also seems to have a pomerial plan, but that is too early to be Auruncian and must, therefore, be Etruscan, as were such early plans in Capua and other cities of that period.

Pompeii.—One of the most interesting and important houses recently excavated along the Street of Abundance is that of the *Lorei Tiburtini*, a family originally from Tibur (Tivoli). Prof. M. Della Corte has just issued a brochure with description and illustrations which make clear the peristyle, the *euripus* with its bordering statues, and many of the fine wall paintings of the house, especially: episodes from the *Iliad* and the *Heracleid*, the *Diana and Actaeon*, the personifications of the Seasons, a Narcissus, a Pyramus and Thisbe, and the portraits of Loreius Tiburtinus Senior and his daughter Loreia.

Rome.—Excavations in the Forum of Caesar, connected with the opening of the *Via dell' Impero* from the Piazza Venezia to the Colosseum, have brought to light a banking house, numbers of shops, and large stretches of early imperial walls.

IRAQ

Kish.—The Oxford-Field Museum Expedition has discovered several towns near Kish, in one of which—Barghuthiat—was found another palace of the Sassanian period. Figurines of terra cotta, coins of the Seleucids, Parthians, and Sassanians (312 B.C.—42 A.D.) were found in considerable numbers. A copper fork and two spoons, pots, bowls, drinking cups (rhytons), ladles, etc. are relics from household utensils.

Gerwan. — The earliest aqueduct thus far known has been discovered. It was built by Sennacherib, son and successor of Sargon, soon after 705 B.C. The river Gumel Su was tapped at Bavia and the water brought for thirty miles in a canal until it reached the Khosr river some fifteen miles above Nineveh. Across a ravine valley the engineers of the king built a stretch of the aqueduct, 900 feet long and 75 feet wide, of ashlar masonry. On the buttresses of the piers was found a cuneiform inscription which in highly sounding phrase records the great work of the king.

Tell Arpachiyah.—The British Museum and the British School of Archaeology in Araq have just completed the first season's work on a prehistoric mound four miles from Nineveh. Ten superimposed villages have thus far been pierced, and the sequence of early peoples begins to become clear. In the sixth settlement, which had been destroyed seemingly by some foreign invader, in the house of the chief man, were found hundreds of broken pieces of painted pottery, clay and stone cult figurines, bowls of the marble which is still today called Mosul marble, obsidian beads and vases, carved pieces of stone resembling modern chessmen, amulets and beads of soapstone, and three examples of double axes like those symbols of worship in Crete a millenium later.

Tell Asmar.—Eshnunna is the ancient name of the present Arabic Tell Asmar. It was the capital of King Sargon. Here the Iraq Expedition of the Oriental Institute of the University of Chicago has uncovered the ruins of a town of the third millenium B.C. Objects found increase the proof of early commercial intercourse with India. The settlement dates at about 2500 B.C., after the Sumerians had been subdued by the Semitic Akkadians in the time of Sargon the Elder. The discovery of an alabaster head "in the round" of an Akkadian —the first known piece of this type— is so like a modern Bedouin of the nearby desert as to be startling. A terra cotta window with grilles exactly like those of wood used today, the entire drainage system of the palace with the branch drains from bath rooms, an unexpected arched door, a bakery with two ovens, a kitchen with water jars, a handmill and grindstones, a number of exquisitely carved cylinder seals, are but a part of the finds. Under the floor of the palace was found a hoard of jewelry consisting of a silver diadem with silver, lapis lazuli, and carnelian pendants, a "dog collar" necklace, a silver filagree disk, probably the center piece of a girdle, beads of onyx, hairpins, a bracelet and an anklet of silver and lapis.

PALESTINE

Jericho.—Twenty-five Bronze Age tombs have yielded to the excavation conducted by Garstang, 1,800 objects, mostly pottery vases. Garstang dates the fall of Jericho at about 1400 B.C.

Samaria.—The joint expedition under the direction of J. W. Crowfoot has traced the massive wall fortifications of the Israelite period and shown that Samaria in the days of Kings Omri and Ahab had attained a high degree of wealth and material civilization. A series of carved ivories, mingled with Israelite potsherds of the Eighth and Ninth centuries B.C., is a most remarkable find.

Site of Pilate's Praetorium.—English scholars have held to Herod's Palace on the southwest hill as the correct site. Pere Vincent of the French School champions anew the fortress Antonia at the northwest corner of the Haram, basing his claim on the recent find of a sumptuous pavement which seems to merit the name *lithostratos* as applied to the scene of the trial of Jesus as given in John 19:13.

PERSIA

Persepolis.—Persepolis, burned by Alexander the Great in 330 B.C., has furnished the greatest surprises of the year. The work has been done by the Oriental Institute of the University of Chicago. Two miles from Persepolis was found a Stone Age village dating 4000 B.C. in a better state of preservation than any such discovery heretofore made. Flint knives were found lying in pottery dishes. Polychrome designs on the pottery are better than most of such work during the two succeeding millenia. But the reliefs on the monumental staircases of the palace of Xerxes constitute a *tour de force* that ranks in historical, artistic, and archaeological value with Troy, Cnossus, and Tutankhamen. Taken together, these friezes, about five feet high, would make a panel of nearly 1,000 feet in length. The reliefs are on both sides of the stairway balustrades. They represent, in the finest detail, in addition to Persian and Median guards and members of the Ten Thousand Immortals, tribute bearers of 22 nations subject to Persia, who carry different objects symbolizing the tribute due the Great King. Even the bronze nails, the top parts of which are sculptured female figures, which drop through the hub outside the axles of the chariots, as lynch pins, are done with conspicuous nicety of meticulous detail.

RHODES

Sculpture.—To the recent discoveries at Ialyssus and Camirus of more than 1,000 tombs which yielded objects illuminating the evolution of civilization and funeral rites from Homer's time to Alexander's (*e.g.* the Phidian stele of Crito and Timarista), have been added this year hundreds of archaic bronzes, vases, and pieces of pottery, as well as about 100 inscriptions of historical importance. A head of *Hermes Propylaios* (mentioned by Pausanias) of Pentelic marble is claimed as the original by Alcamenes (the great rival of Phidias). Other pieces of sculpture are: the torso of a *kouros* (youth) of the Sixth century B.C., a magnificent head of *Helios*, the Sun God, a well preserved herm, an archaic and unique triple *Hecate* in marble, and a winged sphinx on a bronze vase.

SYRIA

Jewish Mural Paintings at Dura-Europos.—In a synagogue dating 245 A.D., the Yale University and the French Academy of Inscriptions joint expedition has found a splendid series of paintings representing scenes from the Old Testament. Particularly important are "The drowning of the Egyptians in the Red Sea"—the central fresco of three representing scenes of the Exodus—, "The Vision of Ezekiel," who is being upheld by the hand of God, "The Return of the Ark," "Elijah's sacrifice of a bullock," and especially the delineation of part of the Temple at Jerusalem. These paintings are the first ever found of Bible scenes depicted by the Jews themselves.

MISCELLANEOUS

Metropolitan Museum of New York.—The acquisition of the Lansdowne Amazon gives the United States one more statue of international fame. This statue is a Roman copy of the work attributed to Polyclitus which won first prize in a contest in which three other sculptors competed: Phidias, Cresilas, and Phradmon.

A New Statuette of the Athena Parthenos.—This new marble figure was found near Monastir in Jugoslavia. In size it is midway between the Varvakion and the Lenormant statuettes.

Anthropology.—The most complete collection of specimens designed for anthropological study is now being arranged for by the Field Museum in Chicago. The American sculptress Malvina Hoffman, has already sent to Chicago more than 70 representative types of the living races of mankind in life size models. These are being cast in bronze and will soon be on exhibition in the New Hall of Man (the Chauncey Keep Memorial Hall) Sharper differentiations in the traditional divisions of the stocks of mankind into White, Brown, Yellow, and Black are expected. One portrait cut in stone, that of an Indian woman of Jaipur, a Brown race representative whose face is markedly Indo-European-Aryan, as it well might be—is likely to cause much heated discussion

NECROLOGY

During the year there have died Jules Martha, the Etruscan scholar; A. H. Sayce, the distinguished scholar in Assyriology, Egyptology, and Hittite; Raymond P. Dougherty, Assyriologist of Yale University; Jean Gennadios, Greek diplomat, who presented his wonderful library—kept in Athens in the Gennadeion, named after him—to the American School of Classical Studies in Athens.

PAINTING

By Florence Seville Berryman

The American Federation of Arts

GENERAL

Three primary factors dominated the field of painting in the United States during 1933: the Century of Progress Exposition in Chicago; the ascendency of mural painting, which gained momentum, and an intensification of the spirit of nationalism, probably as an echo of the nationalistic trend in many fields, throughout the world, but with the specific impetus in this instance of foreign painters' success in the United States, of whom Diego Rivera, noted Mexican muralist, was an outstanding example. Closely connected with the first and third factors, was the spectacular increase of popular interest in painting.

A CENTURY OF PROGRESS EXPOSITION

Exhibition of the Fine Arts.—The official Century of Progress Exposition of Fine Arts, held at The Art Institute of Chicago near the Exposition grounds, was pronounced by many authorities not only the outstanding art event of the year 1933 but the greatest and most important exhibition of the kind yet held in the United States. The Exposition management entrusted wholly to the Institute the organization of this official exhibition; Robert B. Harshe, Director, and Daniel Catton Rich, Associate Curator of Paintings and Sculpture assembled a show which will probably not be equalled for many years to come. It was valued at $75,000,000, almost twice the value of the entire Chicago World's Fair of 1893. Broadly interpreting the theme "A Century of Progress" to mean not only art of the last century, but a hundred years' progress in American collecting, Messrs. Harshe and Rich arranged "a sequence of the masterpieces of paintings, beginning with European works of the thirteenth century and coming down to European and American examples of today." Paintings comprised the greater part of the display, constituting 795 out of a total of 1227 objects, and occupied 34 galleries. With the single exception of Whistler's "Portrait of his Mother," lent by the Louvre through the Museum of Modern Art, New York City, the exhibition was assembled entirely from American sources: 31 art museums and more than 200 private collectors. The painting division comprised three main parts: European painting from the Thirteenth through the Eighteenth centuries (9 galleries) hung in historical sequence; Nineteenth century painting, mostly French and American (with one gallery of early American examples) "arranged so as to throw into relief the great artistic personalities of the last hundred years;" and Twentieth century painting, American and international, stressing French and German. Nearly all the acknowledged masters of the great European schools were represented, as well as American painters of recognized ability, past and present. Cezanne as "the greatest painter of this century" was the only painter given a "one-man" show, as his 17 paintings occupied a single gallery but Renoir was represented with an equal number, and several other artists with almost as many canvases.

This Century of Progress Exhibition attracted the largest crowd that ever attended such a display: 1,538,103 persons were admitted to the galleries between June 1 and Nov. 1.

Whistler's "Portrait of his Mother," given central placement in one of the large galleries devoted to American painting, was the "star of the show" from the viewpoint of popular interest. Brought to this country in November, 1932, and shown in New York, San Francisco, St. Louis and Columbus, before it reached Chicago, it is estimated to have been viewed by more than 2,000,000 persons during its first twelve months here. The painting will visit six more American cities before it is returned to Paris in June, 1934.

Murals.—Painting also played a prominent role within the Exposition grounds. Hundreds of displays included dioramas with painted back grounds. California, Florida, Illinois and other states, as well as industrial exhibitors, had mural paintings as parts of their exhibits. Much of the work was ephemeral; but a number of murals by noted painters, were of such character as to deserve permanent placement. The outstanding work in this class, perhaps, was the monumental mural painted by Thomas Hart Benton for Indiana Hall in the States Building. Painted in tempera on gesso, it depicted Indiana history unrolling progressively "the social and environmental changes of the country" from the time of the Indian to the present era of machine culture. A striking mural was painted by Leo Katz for the Johns-Manville Company, and was housed in a building especially designed for it by the noted architect, Ely Jacques Kahn. Entitled "Prayer for Light," it comprised 4 sections depicting respectively, cold, heat, sound and mechanical motion, with a central figure, the Genius of Mankind. Hildreth Meiere executed a mural for the exhibit of the National Council of Women in the Social Science Building, entitled "A Century of Women's Progress Through Organization," and epitomized woman's achievement in the United States since 1833 through industry, hospital service, abolition of slavery and equal suffrage.

Forty murals representing industries in the various states, occupied a gallery devoted to industrial art in the

General Motors building. Among these were panels by Axel Linus and a mural depicting Ohio's contribution, by Miklos Gaspar. The Federal Office of Education of the Department of the Interior included 3 mural paintings by William Thompson in its exhibit. These depicted education of yesterday, today and tomorrow. J. Joseph Capolino's mural series of the history of the United States Marine Corps, begun a decade or more ago in Philadelphia, comprised the Century of Progress exhibition of that branch of the service.

Contemporary Miniature Paintings constituted a comprehensive exhibition by five outstanding American societies of miniature painters: the American, Brooklyn, California, Chicago and Pennsylvania societies. This combined display was held in the Graphic Arts Building.

MURALS

Diego Rivera injected most of the melodrama into painting during the year, because of his insistence upon combining propaganda with art. His series of vividly colored monumental frescoes covering the walls of the Detroit Art Institute's garden court, the painting of which consumed 9 months, were unveiled in March. They were the gift of Edsel Ford at a cost of $25,000.00, and constitute an interpretation of Detroit industries, ‘‘men and machines.’’ Because of what many critics claimed was a Communistic interpretation of theme, and the introduction of racial types not characteristically American, these frescoes aroused a storm of bitter protest, and equally impassioned defense. The controversy had the effect of greatly arousing public interest; during March, the Detroit Institute had 86,522 visitors, the largest attendance since its new building was opened in 1927.

Señor Rivera next began work on the large fresco he had been commissioned to paint in the main hall of the R. C. A. Building in Rockefeller Center, New York City. His theme was ‘‘Human Intelligence in Possession of the Forces of Nature.’’ As he was completing the work in May, by the inclusion of a portrait of Lenin, he was dismissed (with fu payment) by the management, for se eral given reasons: the communisti atmosphere of the fresco, the artist refusal to remove Lenin's portrai and the vividness of his colors, sai not to harmonize with other mura commissioned for the same hall. direct result of this affair was th cancellation, a few days later, c Rivera's commission to execute gigantic mural for General Moto at the Century of Progress Expos tion.

Using the money paid him for hi suppressed mural at Radio City Rivera began work in July on a ne series of 21 frescoes in the New Worl ers' School, New York City to b done without charge, as his gift t the workers' cause. These mural painted on removable panels, depic the history of the revolutionary ide in America.

The R. C. A. Building in Rock feller Center, received the complete work by José Maria Sert of Spain, large murals depicting man's ne mastery of the problems of moder civilization: the abolishment of th destructive forces, war, slavery an disease, and the development of lif conserving powers.

Radio City Music Hall.—A nun ber of murals were completed an installed in the Radio City Mus Hall: ‘‘The Phantasmagoria of th Theatre’’ by Louis Bouché in th basement lounge Ezra Winter's mur inspired by the ‘‘fountain of youth theme in the grand foyer; Henry Bi lings' and Yasuo Kuniyoshi's decor tions of the women's lounges; ‘‘Me without Women,’’ an abstraction b Stuart Davis, and Ulreich's ‘‘Wil West’’ mural in the men's lounges Witold Gordon's mural series ‘‘Hi tory of Cosmetics,’’ also his series o map panels. Boardman Robinson excellent mural for the lobby of th R. K. O. Building was well placed an lighted.

Whitney Museum, New York Cit At the beginning of the year, Thoma Benton completed a series of eigh murals for the reference room of th Whitney Museum. Entitled ‘‘Th Arts of Life in America’’ they d pict the "Changes brought about by mechanization," and were executed in tempera on gesso. Although Mr. Benton envisioned American life as essentially discordant, vulgar and rough, his work was praised for its virility and aesthetic qualities. He was the recipient of the gold medal in decoration painting from the Architectural League of New York at its annual exhibition, for his Whitney Museum murals; and for the same, was one of the two artists included on the "Honor Roll" of the "Nation" for New York, 1933.

The Los Angeles Public Library murals by Dean Cornwell were installed early in the year. The series of 12 murals, which consumed five years of labor contain 300 figures, four times life-size, and depict the history of the city and state. The four main murals have a color scheme of blue and warm gold. The series is said to be the largest set of murals ever put on canvas.

Mural Instruction. — Because "present indications point to a far greater use of mural decoration in both domestic and public architecture in this country than at any time in our previous experience," the School of the Boston Museum of Fine Arts initiated a class in mural painting for advanced painting students. In New York City a Guild of Fresco Painters was organized through the interest of Mrs. Alma Reed, director of Delphic Studios, "for the purpose of making possible the study of fresco painting." It is under the direction of Conrad Albrazio, who recently decorated three rooms with murals in the new Louisiana State Capitol building in Baton Rouge. Winold Reiss was appointed assistant professor of mural painting at New York University College of Fine Arts.

INCREASE OF NATIONALISM

U. S. Government.—The Wilson Bill, a rider to H. R. 13520, an appropriations act for Treasury and Post Office Departments, which was signed by President Hoover shortly before the 72nd Congress, 2nd session, adjourned in March, promises to have far-reaching effects for American painters, sculptors and craftsmen; official portraits of Federal Government officials to be the work of American artists, public buildings to be decorated with American mural paintings and other types of American art. Whether or not coincidental, the official portrait of Franklin D. Roosevelt, to hang in the White House, was painted by Ellen G. Emmet Rand, noted American portrait painter. The American Artists Professional League, a national organization with headquarters in New York City, was one of the chief supporters of the Wilson Bill. It has been constantly active in behalf of the American artist.

The National Commission to Advance American Art, (which despite its name, is a professional, not a Federal body) was organized in the spring to protect American artists from the competition of foreign artists. Nine painters are included in the governing board of 12 members. This organization intends to bring pressure to bear upon local, state and Federal governing bodies with the aim of obtaining due consideration for American artists. Among its early acts was the issuance of a "Regret List" in which Dartmouth College was "indicted" for having commissioned the Mexican, José Clemente Orozco to paint a large mural "Epic of Culture in the New World." Later, the Commission requested the aid of the U. S. Post Office Department in obtaining recognition for American art by the issuance of postage stamps commemorating deceased American artists. The Commission's activities elicited considerable praise from the press, as well as condemnation from other outstanding sources, such as John Sloan, noted American painter and president of the Society of Independent Artists. Thomas Benton, American mural painter, in an important speech at the American Federation of Arts' convention in Chicago in June, assailed both the nationalistic tide and aesthetic internationalism.

Relief work in behalf of the American artist, included a continuance of the curb market noted last year, in many parts of the country; endeavors to find or create work for artists, by such bodies as the Emergency Work and Relief Bureau of the Gilbson Committee, New York City, and organized campaigns by artists in small cities, to bring their work before their fellow-townsmen. Outstanding amongst the last named was an experiment tried out in Dobbs Ferry, Hastings and Ardsley, New York, early in the year, which resulted in more than 60 sales to the local citizenry.

EXHIBITIONS

The Carnegie Institute, Pittsburgh resumed its annual international Exhibition after a one-year lapse. It contained 350 paintings, approximately 225 from 10 European Countries, 125 from the United States, all secured by invitation. Several honors were awarded to American painters: 2nd Prize ($1,000) to John Steuart Curry for "Tornado"; 3rd Prize ($500) to Henry Varnum Poor, for "March Sun"; 1st Honorable Mention to Alexander J. Kostellow for "After Dinner."

Other Annuals.—In most instances, annual exhibitions of art museums and associations throughout the country were held as usual; prizes were occasionally omitted because of the bank holiday or other depression reasons. The outstanding omission was the National Acadamy of Design's Winter Exhibition, 1933, abandoned, it was said, to focus attention upon the Academy's 109th annual, to be held in the spring of 1934.

American Art Abroad. — Edward Bruce, noted American painter, was a delegate to the Economic Conference in London in July, at which time an exhibition of his work was opened there by Secretary Hull. The European Chapter of the American Artists' Professional League held an exhibition of work by 59 members, including paintings, water colors and engravings, said to be the most important American show held in Paris in many years. It was under the patronage of the American Ambassador, Jesse Isidor Straus, and the American consul general, Leo J. Keena, and their wives.

The Spanish Republic accepted as a gift from the artist and his widow, 14 portraits of eminent men of Spain, painted by the late Maurice Fromkes, Polish-American artist, between 1928-29. They will form the nucleus of a national portrait gallery in Madrid.

AWARDS

Cecilia Beaux was the recipient of the gold medal annually awarded by Chi Omega, national women's fraternity, to an American woman who has made an outstanding cultural contribution to the world. Six painters were among the recipients of fellowships awarded by the Guggenheim Memorial Foundation for 1933-34: Miguel Covarrubias, Georgina Klitgaard, Louis Bouché, Emil Ganso, Arnold and Lucile Blanch, all of whom have won renown for their work. The *Prix de Rome* in painting was awarded to Daniel Boza of the Cleveland School of Art, the first time in 8 years this honor has not gone to a student of the Yale School of Fine Arts. The Institute of International Education awarded a fellowship to Samuel Filner, Pittsburgh painter, for one year of study at the University of Paris.

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There was little of any evidence of the depression in the publication of books on painting. Amongst those connected with trends or events mentioned above, are the admirable *Catalogue of A Century of Progress Exhibition of Paintings and Sculpture* issued by the Art Institute, of which Daniel Catton Rich was editor; two volumes by C. J. Bulliet on masterpieces in the Century of Progress Exhibition, which had originally appeared as illustrated articles in *The Chicago Daily News,* and were issued by that paper in book form, in response to popular demand; *Fresco Painting* by the late Gardner Hale, completed by Shaemas O'Sheel. *The Arts in American Life* by Frederick P. Keppel and R. L. Duffus, one of the series of monographs published under the direction of the Research Committee on Social Trends appointed by

President Hoover, deals with all the arts in the United States between 1920 and 1930 on a quantitative basis. The Whitney Museum issued additional volumes in its "American Artists" series, and also an important volume *Thomas Eakins His Life and Work* by Lloyd Goodrich. An *Index of Twentieth Century Artists* to be issued monthly, was begun by the College Art Association's Research Institute in October. Five of the first six artists dealt with, two each month, are painters. Two interesting volumes were the work of American painters: *Portrait Painting* by Margaret Fitzhugh Browne, and *Rockwellkentiana* by Rockwell Kent. The Freer Gallery of Art, Smithsonian Institution, published the first of its "Oriental Studies," *The Story of Kalaka* by W. Norman Brown, which deals with miniatures examplifying the western Indian school of miniature painting. An interesting trend noted was the publication, in widely separated cities, of books or booklets on painting by authoritative writers for such low prices (5c. to 70c.) as to place them within reach of everyone: *Six Great Painters* by Pierrot and Richardson, Detroit; *Painting* by Carl Thurston and *Art Stories, Book One* by William G. Whitford, Edna Liek and William Gray, a first reader for the small child, with full color illustrations.

SCULPTURE

By Rose V. S. Berry

Writer and Art Critic

GENERAL

Despite world depression and necessary retrenchment the cause of sculpture did not suffer in America in 1933. The Century of Progress Fair at Chicago and the Philadelphia Out-of-Door Exhibition, kept the work of the American sculptors before the public for many months.

CHICAGO

The Chicago Art Institute financed the Fine Arts Department of the Century of Progress, assembling and exhibiting the collection in its own building. With rare discernment and long experience in gathering that which is significant, Robert B. Harshe, an artist himself and Director of the Art Institute, was largely responsible for the excellence of the exhibition. The aim of the sculpture assembled was to set forth the general tendencies in the art during the nineteenth and twentieth centuries. To that end, important foreign sculptors were included in the assemblage. Realists, romanticists, and eclectics were represented. Primitives with massed simplicity and Cubists presenting their angular planes led the visitor to the sculptor whose tendency was toward the distorted or the grotesque and the abstract which was largely vague and suggestive. Among the foreigners were: Rodin, Maillol, Despiau, Bourdelle, Bouchard, Degas, Matisse and Jane Poupelet (France); Lili Auer, Barlach Belling, De Fiori Kolbe, Lehmbruck, Scheibe, and Sintenis (Germany); Erikson, Johnsson, and Carl Milles (Sweden). Other countries had one sculptor each: Libero Andreotti, Italy; Constantin Brancusi, Roumania; Ian Mestrovic, Jugoslavia; Pablo Gargallo, Spain; Constantin Meunier Belgium; Kai Nielsen, Denmark; Glyn Philpot, England; Chana Orloff, Russia. Among the Americans were most of the best known living sculptors, including a number of the younger men who have never been included in a collection of great importance before, and the deceased Saint-Gaudens, John Donoghue, Charles C. Rumsey, and Charles Grafly.

PHILADELPHIA

The Philadelphia show, a biennial exhibition sponsored by the Art Alliance, is becoming one of the most popular projects for the American sculptor. Installed in Rittenhouse square, it supplies the proper setting for fountain, monumental, memorial, and civic sculpture. This year the purpose, different from other American plans, supplied the incentive which made the exhibition of greater importance than ever before. The will of the late Ellen Phillips Samuel leaves her estate to the project of assembling statues in a memoria which will symbolize the history of America. This pretentious monument is to rise on the East River Drive in Fairmount Park. Dr. Paul P. Cret, Philadelphia architect, has designed the architectural form the completed monument shall assume. Rising one on the other, three imposing terraces will supply the background upon which the sculpture will be placed. The central unit has been completed. The Committee now faces the task of selecting six sculptors to work out the preliminary studies for this section of the memorial.

With this object in view, the Art Alliance embraced in its Out-of-door Exhibition this year, from May until September, upwards of 300 pieces of sculpture, by 94 living sculptors. Among those not included in the Chicago Exhibitors are: Herbert Adams; Edmond Amateis; Vadimé Androusoff; Alexander Archipenko; Chester Beach; Fritz Behn; Christian Berg; George Biddle; Gustav Bohland; Gaetano Cecere; Louise Cross; Joseph Coletti; José de Creeft; Dominico d'Imperio; Guiseppe Donato; Ulric H. Ellerhusen; Wharton Esherick; Beatrice Fenton; Duncan Ferguson; Paul Fiene; John Flanagan; Leo Friedlander; Sherry Fry; John Gregory; Chaim Gross; Walker Hancock; James House Jr.; C. Paul Jennewein; Charles Keck; J. Wallace Kelly; Manya Konolei; Anna Coleman Ladd; Albert Lassle; Hilda K. Lascari; Henri Laurens; Lee Lawrie; Arthur Lee; Leo Lentelli; Edward McCartan; R. Tait McKenzie; Pablo Manes; Luigi Maraffi; Louis Millione; Samuel Murray; Isamu Noguchi; Yoshimatsu Onaga; Alexander Portnoff; Brenda Putnam; Raphael Sabatini; Harry Rosin; Joseph Renier; Hélène Sardeau; Concetta Scaravaglione; J. Otto Schweizer; George Snowden; Maurice Sterne; Lawrence T. Stevens; Albert Stewart; Marion Walton; Sidney B. Waugh; A. A. Weinman; Agnes Yarnall; Ossip Zadkin. The Committee in whose charge this great plan will move forward is composed of prominent Philadelphians; Francis Biddle, Walker Hancock, William W Harper, Benjamin R. Hoffman, R Sturgis Ingersoll, Horace H. F. Jayne, John S. Jenks, Fiske Kimball, R. Tait McKenzie, Edgar Scott, Charles L. Borie, Jr., Chairman, and Henry Marceau, Secretary.

ONE MAN SHOWS

Warren Wheelock, notable chiefly for his work in stone and wood, had an interesting exhibit.

Isamu Noguchi, showed twelve new sculptures in his exhibition, including portrait heads of J. B. Neuman, Agnes Enters, Suzanne Ziegler, and Eleanor Lambert.

Maurice Sterne gave a comprehensive exhibition for first time in several years, including a number of pieces recently completed in Italy.

Gwen Lux gave her first individual show during the season, exhibiting among the fifteen sculptures the "Eve" which was rejected by S. L. Rothafel for the Rockefeller Radio Center.

Sidney B. Waugh, the *Prix de Rome* Scholar for 1929, showed a collection of sculpture, interesting in that the usually classical character of the Italian-trained *Prix de Rome* sculptor was lacking.

Brenda Putnam.—Her show was in tho nature of a retrospective collection covering twenty years of her work. She included some portraits including heads of Harold Bauer, Ossip Gabrilowitsch, Bodansky, and her famous kins-woman Amelia Earhart Putnam, the famous aviatrix.

Paul Fiene.—This exhibition was retrospective. "Rising Figure," aroused interest in the work of this young man.

Reuben Nakian.—These sculptures included portraits of ten well known artists, including Alexander Brook, Elmer Rice, William Harlan Hale, Peggy Bacon, and Joseph Pollett.

Boris Blai, a young Philadelphia sculptor had for outstanding pieces, "The Dance of Mary Wigman," "The Dance of the Dying Swan, Pavlowa," and the "Head of a Boatman." His work consisted largely of wood and bronze.

Paul Manship presented forty important pieces covering a period of years. Outstanding in interest were his Lincoln Portrait to be erected in Fort Wayne and a scale model for the Paul J. Rainey Memorial Gates for the main entrance of the New York Zoölogical Park.

Doris Porter Caesar made her exhibition rather interesting and different by showing it in the original, rough-surfaced plasticene. For some it went as strength, for others it was disturbing.

George Winslow, with his Indian portraits, has taken a place beside Eugenie Shonnard Allan Clark, and Maurice Sterne, all of whom reveal in their work the tremendous strength of these American faces and preserve it by handling the portrait with a pre-Phidian mass and simplicity.

INSTALLATIONS AND PLACING OF COMMISSIONS

Aitken. — Robert Aitken's equestrian statue of Major General Oliver Otis Howard, commander of the 11th Union Army Corps in the battle of Gettysburg, was formally unveiled by the State of Maine on the site of the Otis headquarters during the engagement. Aiken's large group statue, the Samuel Gompers Memorial, in Washington, D. C., was recently unveiled and dedicated by President Roosevelt.

Malvina Hoffman has been commissioned to execute 110 bronzes, which when completed will constitute the huge memorial to be known as the "Unity of Man." Seventy-five of the number have been completed and were recently exhibited at the Marshall Field Museum in Chicago.

Radio City.—Commissions recently placed for the Rockefeller Radio Center include four sandstone panels, sixteen feet high by nine feet wide, to be done by Leo Friedlander; a sculptural fountain in gray granite and bronze for the Center with gilded bronze figures by Paul Manship, and a group of bronze figures, representing the basic industries of the British Empire, to be done by C. Paul Jennewein.

Louisiana State Capitol.—Among the sculptors represented by important contributions to the completed Louisiana State Capitol at Baton Rouge are Lorado Taft, Lee Lawrie, A. A. Weinman, and Ulric H. Ellerhusen.

SCHOLARSHIPS, PRIZES AND AWARDS

Prix de Rome.—The *Prix de Rome* Sculpture scholarship was taken for the ninth successive time by a student, Robert F. P. Amendola, of the Yale University Fine Arts Department. Amendola comes from Boston, and competed with 68 aspirants.

Beaux Arts.—The Beaux Arts Institute Paris Prize for sculpture was won by Walter Yoffe aged twenty-two. The prize carries $1,200 for one year's study in Paris. Yoffe also won the silver medal for the best composition during the year, exclusive of the Paris prize.

The Boston Museum of Fine Arts awarded its sculpture traveling scholarship to two sculptors this year: Bertha King, and Edith L. Warren.

Guggenheim Foundation.—This sculpture award was given to Gwen Lux and Mary Tarleton.

The Lindsey Morris Sterling prize for the best bas-relief in the National Sculpture Society was awarded to Anthony de Francisi.

The Helen Foster Barnet prize for the best work of a sculptor under 35 years of age, was awarded to Katherine K. Lane, by the jury of the National Academy's Winter Exhibition.

The Elizabeth Watrous gold medal for the best medal was given to John Flannagan for his frame of medals, a group of 45.

The Montclair Museum Medal for sculpture went to Eda Lord Damerest for her statue "1931."

Holland Society.—Lorado Taft was awarded the Gold Medal of the Holland Society for outstanding work in artistic and scientific achievement.

Chicago American Exhibition.—The first sculpture prize of the Chicago American Exhibition was awarded Olga Chassing; the second prize went to Boris Gilbertson.

The Pennsylvania Academy of Fine Arts awarded its James McClees prize to Edmond Amateis, for his ''Circe.''

The Widener gold medal went to John Gregory for his ''Lyric Love''

The Anna Hyatt Huntington prize of the Women's Painters and Sculptor's Society went to Gertrude Lathrope for her ''King Penguin.''

Soap Exhibition.—Two thousand sculptors submitted work in the ninth Annual Soap Exhibition. Several winners in previous exhibitions won prizes in this year's show, among them Elleh Bezaz, George Frederick Holschuh, and Wayne M. Guyther. The prizes for the Professional Class were awarded: First, ''Torso,'' Tom Robertson; second, ''Pro-Patria,'' George F. Holschuh; third, ''Spring,'' Elleh Bezaz. The jury consisted of Alexander Archipenko, George E. Ball, G. J. Barnhorn, Alon Bement, Gutzon Borglum, Harvey Wiley Corbett, Harriett Frishmuth, Charles Dana Gibson, Robert Laurent, Leo Lentelli and Lorado Taft.

GIFTS AND ACQUISITIONS

Epstein Busts.—Jacob Epstein's portrait bust of the ''Duchess of Hamilton,'' was presented to the Toledo Museum by Steven Scott. His portrait of Paul Robeson, was acquired by Smith College. Another of the well known portrait busts by Epstein was presented by E. M. Warburg to the Modern Museum of Art.

Wheelock Wood Carving.—A woo carving by Warren Wheelock, representing ''Woman's Emergence int the New Day,'' was presented by th Industrial Council of the State of Nev York to Frances Perkins, Secretar of Labor.

''Pop'' Hart Statue.—Reuben Nakian's portrait statue of ''Pop'' Har was purchased by Mrs. John D. Rockefeller, Jr., for the Modern Museum of Art.

Bust of Saint-Gaudens.—John Flannagan's extraordinary portrait bust o his master Augustus Saint-Gauden has been acquired by the Metropolita Museum.

Faggi's Noguchi. — Alfeo Faggi' poetically beautiful portrait of Noguchi, the Japanese poet, was purchased by the Minneapolis Museum.

COMMISSIONS PLANNED AND PENDING

From the Fine Arts Commission in Washington, D. C., word comes of things done and tasks yet to do, in conjunction with the tremendous building plan undertaken by the Government to assist in its unemployment program Art Commissions, Building Committees, Federal Agents, State, City, and Municipal Commissions are planning important building projects. Federa and municipal buildings that might not have been erected for years to come are in the immediate Relief Program. 1934 for the American Sculptor may bring most unexpected opportunities for single and group commissions.

ARCHITECTURE

By Harry F. Cunningham

Professor, University of Nebraska

GENERAL

If it were permissible to open a serious discourse on a serious subject with an attempt at humour, one might suggest that the three initial letters so prominently and persistently displayed in these days—N.R.A.—stand for the phrase ''No Recent Architecture.'' And, as a matter of fact there has been—aside from the Government projects in Washington—no recent architecture. The farmers have it appears, received much help, and they clamour for more; the business men report improved conditions, and they hope that their reports are as true as they are brave. The architects, though, continue to paint pictures, to write articles and lectures, to dream dreams and wonder how the sheriff may be diverted from their particular doorsteps. One architect has echoed a statement made in these pages two years ago, to the effect that the current depression has given the architects the time to do some much-needed straight thinking about the old fact that their art is not so much a matter of brick and stone and steel and concrete as it is a matter of knowing the needs of the social structure and filling those needs. Most architects complain though—or they would if they were of a complaining nature—that the profession cannot endure much longer unless some opportunities are offered soon to put their thinking to the test of practise.

RADIO CITY

Radio City in New York has made some progress, although the progress has been slow. The great spaces designed for a hall of amusement have been occupied. The decorations of these great spaces are garish, blatant, startling and so on, but those qualities may be the direct reflection of a tendency one observes in the public taste to accept things which are garish, blatant, startling and so on. And, since quite delightful music comes from these spaces, *via* the radio, on Sundays, and since television is not, as yet, a part of the normal radio equipment, one can enjoy the music (*via* the radio) and forget the blatant garishness of the startling place from which it comes. Lee Lawrie's doorway for the main building has more than fulfilled the promise of his model, which was commented upon in last year's AMERICAN YEAR BOOK. And some gorgeous, huge medallions, designed by Miss Hildreth Meière, which appear to be of metal and enamels, show how the stark, enormous masses of masonry which the group has turned out to be, may be "humanised". One regrets that the "humanising" of these masses and surface has not been carried out more fully, but, perhaps, there is a limit, even to the millions behind this enormous project in permanent advertising. The whole group lacks colour—at least so far—and the incidental bits afforded by the Lawrie door and the Meière medallions only serve to show up the poverty of the scheme as a whole.

CENTURY OF PROGRESS FAIR

There is, of course, the Chicago Fair—the so-called "Century of Progress". A writer in the English *Architectural Review* has referred to this thing as "mixed metaphors at Chicago". A cultivated gentleman of my acquaintance remarked after his visit to the Fair: "I took one look at the architecture and found it atrocious. So I sat me down and watched the world go by. The world going by is always interesting, even in Chicago". The Fair has a certain quality at night under the softening, blending kindliness of the marvelous electric lighting. But architecture—even that of a Fair—is not made for night enjoyment only. By day the whole thing in Chicago is perfectly horrible. At one time the papers, and particularly the architectural Press, spoke of the great influence upon the art of the future, which the Fair would have. The opinion is about unanimous now that the influence will indeed be great, but it will be a negative influence—a sort of "Keeley Cure" as it were. The "mountain laboured and brought forth — a mouse". And that is about what has happened in Chicago. A group of talented artists, some of them among the most famous artists we have, laboured for years and brought forth—a bright green mouse with purple ears, orange feet and a bright red tail. The thing has clock-works inside and Neon lights for eyes. It looks, at night, quite like a fairy out of fairyland, but—in the heartless light of broad day—one sees the paint beginning to peal off its tin sides and one sees the tin sides themselves beginning to rust through in spots and one suspects that the clock-works inside have nearly run down. The thing will have passed, even before these lines go to press, onto the junk pile of the past whereon all tin mice, however gaily painted, slip off quietly into their destined oblivion. These things have been done—once—in Chicago. It will not be necessary, it will not be even permissible, to do them again anywhere. And, the thing has provided work for a large number of worthy young people who needed the work. Also, one knows of at least one case in which bonds of the affair, accepted as payment for services, have turned out to be so profitable as to have created an ''estate'' where there would have been—without the bonds—nothing at all.

WASHINGTON

Many buildings are going up, as the saying goes, in Washington. The noble plan for the Triangle is being carried out and one discovers that nobility continues to repose in the *plan,* the realisation having none of that quality. The discovery is disappointing. Another ''mountain has laboured and brought forth — a mouse''. Only this time it is a drab little creature. Two excellent things have been done in Washington, however, both of them outside the Triangle. One refers to the New House Office Building, by the Allied Architects of Washington, D. C., and the Folger Shakespeare Library. The last named is by Paul Cret. The New House Office Building is distinguished—it has quality. The Court, particularly, is extremely well handled. The detail shows a fine feeling for the old Washington manner which one might call ''Early Federal''. There is no echo of this indigenous manner on the Triangle. The Supreme Court Building by Cass Gilbert (also off the Triangle) is nearly completed. This architect has done this large building in his best Public Building manner, a manner that has been well tried out by him, in the past, on Public Libraries and Art Museums. Here the same manner serves Justice and Justice, of course, is notably impartial. Justice is, also, one hears, quite blind. The building has a sort of commonplace nobility, or a noble commonplaceness, which seems to fit, most appropriately into the neighbourhood of the Congressional Library. The Library, incidentally, is being added to—the sad grey granite, with its uninspired wedding-cake decoration, is pushing its heavy way eastward. Attics are being added. But, sad as the exterior was and is, there are wonderful things inside this Congressional Library. Most of them are books.. Down by the Lincoln Memorial there are two new buildings, both of them modestly ordinary. One is for the Public Health Service, by J. H. de Sibour. The other is for the Institute of Health and is by the Office of the Supervising Architect of the Treasury. The modest ordinariness of the latter deserves no comment. The building by de Sibour suffers, principally, through poor detail and tight, sarcophagus-like entrances. Poor company for the Lincoln Memorial and the National Academy of Sciences Building, these two.

But, to return to the Triangle. The Department of Commerce pile was treated in THE AMERICAN YEAR BOOK two years ago. The pile has grown no smaller in these two years. And the building has not fitted into the Washington atmosphere any better than it did two years ago. If it is a symbol of Commerce, perhaps Commerce is, in fact, the ''Juggernaut'' it has been represented to be in some kinds of fiction. One hears that much of it is empty now, that its miles of corridors echo to no hurrying footsteps. But that is mere hearsay, and may be another fiction. One would scarcely dare to enter so large and so forbidding a building merely to verify reports. The Building for Labor and Independent Establishments (perhaps one should say two buildings), by Arthur Brown of San Francisco, employs old details combined in a manner which introduces a violent disagreement in scale between the central portion and the two wings. The same order is used, with similar entablatures, in two sizes—the old ''father and son'', or ''hen and little chicks'' difficulty on a grand scale. There is, doubtless, an explanation for this aesthetic crime—one has even heard it called a *tour de force*—but no amount of explanation can ever hope to mitigate the shock of the two distinct scales of this group for Labour and Independent Establishments. There is the New Post Office, dainty and effeminate, by Delano and Aldrich of New York. This building is principally grey, as one remembers it, but there are little dashes of pink, here and there. It makes one think of an old lady—a spinster lady—who has, suddenly, remembered the rouge of her gayer youth and has dabbed a bit of it on her skinny old cheeks. The Internal Revenue Building was finished several years ago. It is the least successful of the whole group, in which none may be said to be very successful at best. And the best one of the lot—it is almost good—is the Department of Justice Building by Zantzinger, Borie and Medary of Philadelphia. This building shows some faint spark of inspiration in the handling of the detail. It is not quite so trite as the others. The Archives Building, by the Office of John Russell Pope of New York, is "just another building with a Corinthian order". The height of the attic—imposed, doubtless, by the requirements of the programme—is so great as to dwarf the colonnade and spoil the scale. The cornice seems to cut the building just about in half. Such a possibility, such a *group* of possibilities as the architects had, here, on the Triangle! And such a sad, sad thing they made of their opportunities. Art and Democracy do seem, after all, to be quite incompatible. Or, they would appear to be so if one did not always remember the Lincoln Memorial, the Academy of Sciences, the Folger Library and a few others. These things are too big to pass unnoticed. They are too commonplace to deserve favourable notice. One almost finds himself wishing that the sheer weight of the tremendous masses that have been imposed upon the Triangle might cause the whole business to sink into the quicksands of oblivion and give a new race, with less fame and more imagination a clean Triangle to work on.

ARCHITECTURAL EDUCATION

Architectural Education is making some slow strides—in spots. But they are in too tentative a stage to warrant discussion as yet. A few of the Schools are coming to see the necessity for a broad Liberal Arts background for the study of the Art that must fill the needs of the social structure of the day. These schools are still few and the ways of that few are still hard and sore beset by skepticism and academic difficulty.

PUBLICATIONS

Publications of real value, in the field of Architecture, have been negligible, during the past year. Not one has come to the writer's notice. As to the periodicals, one can but repeat the remark of last year, that "*Architecture,* published by Scribner's, and edited by Henry Saylor, leads the field in quality, general interest and intelligent choice of material." The *House Beautiful* is, as usual, the best of those magazines of general interest which should appear, each month, upon the living room table in every proper household. The *Architectural Record* has tried to atone for some of its past sins by publishing—October, 1932—a most interesting study of the possibilities of "module-design" in houses. This is a system to which Mr. Flagg devoted many reams a few years ago; a system which the Greeks and (possibly) the Mediaeval Architects used long ago. The study in the *Record* was by the talented Mr. Lindeberg of New York and it is illustrated by charming sketches. An excellent article by Mr. Magonigle appeared in the *American Architect* during the summer and a series by the same distinguished artist is about to begin in *Pencil Points.* One recalls an article in the Spring *Yale Review,* on "North Sea Architecture," by Lewis Mumford, whom someone has referred to as "a pleasing writer on architecture." The article in question is in Mr. Mumford's usual graceful style. It is quite harmless, setting forth as it does, Mr. Mumford's approval of anything that comes out of Germany (or Russia), or is representative of what he calls the "new civilisation."

XXVI. THE ARTS

MUSIC AND THE OPERA

By Catherine Smith Bailey

Music Reviewer, *The Christian Science Monitor*

THE TREND OF THE TIMES IN MUSIC

In many ways, some expected, others quite unforeseen, music has reflected the trend of the times. Among the first to feel the blows of the widespread financial depression, musicians had already begun to readjust themselves to the straitened circumstances prevailing during 1932, and with conditions still decidedly unfavorable in 1933, they were well started on the road to reconstruction and revivification. In every branch of music, this liveliness is evident. Everywhere new orchestras, new opera companies, new choruses are springing up. The so-called ''new leisure'' is being turned to the making of and the listening to music. Subjoined, under the various headings, the reader may trace these new phenomena of music in a changing world, a world which no longer flocks to hear soloists except in rare instances, a world which looks with lenient eye and lends a foregiving ear to joined efforts sponsored by earnestness and honesty. For it has learned that even an unemployed musician is still first and foremost a musician.

OPERA

New Companies.—Opera, child of luxury in the United States, has gradually arrived at a mode of existence in many ways comparable to the operatic life of Italy where small opera companies have always flourished and offered singers a chance at routine training which is the *sine qua non* of operatic success. In the United States, opera used to mean the Metropolitan Opera in New York and the Civic Opera in Chicago. These, striving in the midst of huge guarantee funds and mounting performances with opulence and artistic lavishness, were the only accepted operatic ventures. Smaller companies, unless they were the rare Russian and German companies which came here shortly
after the war, were held in light e
teem, and drew relatively small aud
ences. Now the old Chicago Civ
Company is gone, and the season c
the Metropolitan is shortened. Y
this past season, for all its financi
difficulties, has seen new opera com
panies springing up like the pr
verbial mushrooms. And many c
these new companies have reaped
good financial harvest. New Yor
Chicago, Boston, St. Louis, San Fra
cisco, Baltimore, Philadelphia, Atla
tic City and many other cities ha
witnessed the vigor of the new ente
prises which provided opera at pop
lar prices, operas whose casts include
names formerly eminent in the larg
companies, people of wide experien
whose financial difficulties had aut
matically revised the demands
singer might make in salary, parts c
special consideration.

The Summer Season.—New Yor
City witnessed a summer season c
opera at popular prices in the Hipp
drome, to which huge audiences can
nightly through a terrific heat whic
depleted the audiences even in th
Lewisohn Stadium. This so-called Chi
cago Opera Company, which brough
sneers from every wiseacre in Ma
hattan when it first announced itsel
ranged through the entire conve
tional operating repertory before a
diences which included standees i
addition to capacity seated audience
This amazing success resulted in
fall season of fourteen weeks whic
continued to draw large audience
On the trail of this success in Ne
York, came numberless imitations. I
many cities small companies were o
ganized and fared well. Of cour
there were the usual number of mor
talities among these companies, b
the number of those which did hol
together was surprising. The Sa
Carlo Grand Opera Company, pere
nial survivor of years of discourag
ment, and good old standby of th

musical provinces, so to speak, found for itself a very successful popular priced season in Chicago, and a good series of appearances elsewhere. Probably the outstanding artistic achievement of the summer's operatic efforts was the first American performance in September of Chaikovsky's ''Iolanthe,'' sponsored by the Musicians' Emergency Fund, Inc., and given at the Garden Theatre, Sleepy Hollow Country Club, Scarborough, N. Y. Eugene Plotnikoff conducted, and the cast included Monti-Gorsey Ivantzoff, Kozakevich, Pantelieff Vasily Romanoff and Rhys Morgan.

The Metropolitan in New York.—Invigorating as all this activity is, it still does not detract from the importance of the Metropolitan Opera Company in New York, where the finest grand opera in the world occasionally emerges from the routine. And, incidentally, with audiences scantier, the routine performances about which complaints were some years ago vigorous are far fewer. A Wagner cycle, with magnificent casts, filled a set of six special matinees during the six weeks from Jan. 27 to March 3. Leider, Olszewska, Ludwig Hofman, Ljungberg, Melchior, Schorr, all were included in the lists. Scotti's farewell to the opera stage came on Jan. 20, in ''L'Oracolo,'' when he took leave of the stage which had brought him such honors and to which he had contributed so much. Richard Crooks, an American tenor long known for his splendid work on concert stages, made his debut at the ''Met'' on Feb. 25 as Des Grieux in ''Manon.'' Gruenberg's startlingly modern and original opera based on O'Neill's ''The Emperor Jones'' with Lawrence Tibbett in the gripping title role, was probably one of the outstanding successes of the season. The other was Strauss's ''Elektra'' which the management had not dared to mount when it was first written. Now it drew exceedingly well. Montemezzi's ''L'Amore dei Tre Re,'' unheard in New York since 1929, was remounted. The season closed on March 11 with the Metropolitan's hundredth performance of ''Tristan.'' During the sixteen weeks, 36 different works had been presented. On Dec. 26, the new season opened with a performance of Deems Taylor's ''Peter Ibbetson,'' with some passages and scenes revised by the composer. It was the first time in the Metropolitan's history that it had opened a season with the work of an American composer.

The Eastman School of Music in Rochester mounted the first American performance of Offenbach's ''Der Regimentszauber'' with Emanuel Balaban conducting.

The Juilliard School of Music revived Cimarosa's ''Matrimonio Segreto,'' performed it in an English translation by Stoessel and Gatty at the opening concert of the Library of Congress Chamber Music Festival on April 23, and also played it in New York, where it had been unheard since 1834.

Tibbett in ''Emperor Jones.'' — Chicago saw ''The Emperor Jones'' on May 2 and 5, with Tibbett in the role which he has made famous and a company assembled in the city, with Isaac van Grove conducting. Tibbett took this same part to Los Angeles on Oct. 13-16, and to San Francisco on Nov. 17-30, the last two appearances coming in the course of a subscription series of ten operas which were tremendously successful. The conductors were Gaetano, Merola, Issy Dobrowen, and Wilfred Pellettier.

ORCHESTRAS

The Expanding List of Symphonies.—A mere listing of the orchestras which now are to be heard throughout the country may serve to indicate what has become of the unnumbered musicians thrown out of work when theatres bought sound films with canned music instead of using the home-made product, and when economies threw countless others out of jobs which had yielded a decent return for the years of training necessary to acquire good musical equipment. The Westchester Orchestra (N. Y.), Jaffrey Harris conductor; Milwaukee Orchestra, F. L. Waller; El Paso Symphony, H. A. Brown; Kalamazoo Symphony, David

Mattern; Manhattan Symphony, Chalmers Clifton; New Haven Symphony, D. S. Smith; Symphony Society of New Brunswick, (N. J.), Max Jacobs; Seattle Symphony Orchestra Association, Basil Cameron; People's Symphony (Boston), Fabien Sevitzky; Trenton Civic, Henry Elkin; Trenton Symphony, Max Jacobs; Richmond Symphony, Wheeler Beckett; Grand Rapids Symphony, Karl Wecker; University of Tulsa Symphony (developed around a nucleus of former theatre players), George Baum; Reading Symphony; Harrisburg Symphony; Bridgeport Symphony (Conn.), Frank Foti; Kansas City Philharmonic, Karl Kreuger; Providence Symphony, Wassili Leps. There are many others. Few of them are even remotely entitled to be called first-rate, although some in the above list are long established and have a deservedly good reputation. But it is the fact that these orchestras are finding recruits and conductors and listeners that is really heartening.

Concert Activities. — Orchestras of the top rank carried through successful seasons. True, the New York Philharmonic Symphony has definitely abandoned any extended trips. It made this year what were announced as last appearances in Baltimore, Washington and Philadelphia. But Baltimore has its own symphony orchestra, the only municipally supported orchestra in the country, of which George Simonn is conductor. In Washington, Hans Kindler leads the still young National Symphony. It is hardly necessary to point out Philadelphia's pride in Stokowski and the superb Philharmonic. Long ago the New York orchestras stopped coming to Boston, where the Boston Symphony holds such strong sway and such artistic heights. But all this musical independence is a healthful and stimulating sign. The Philharmonic-Symphony, now remaining in New York, kept its high quality of performance and musicianship and initiative. January 4 brought the first American performance of the concert suite arranged by Richard Strauss from his opera "Schlagobers." During February, Bruno Walter led the orchestra through sp cial Wagner and Brahms commemor tive concerts. Toscanini conducted Beethoven cycle. April 12 saw th first performance of Castenuovo-Te esco's Second Concerto for violin an orchestra, Jascha Heifetz, solois Hans Lange, the assistant conducto continues to take various concer through each season.

New York City also heard an supported other orchestras. The Mus cians' Symphony Orchestra, launche last year as an emergency measure provide unemployed musicians chance to perform and be paid, seem to have established itself firmly und the leadership of Sandor Harma Distinguished soloists and conducto appear as its guests. Another o chestra under Nikolai Sokoloff, for years conductor of the Clevelan Symphony, called itself the New Yo Orchestra. It is a self-governin body for which the conductor dete mines only the artistic policy. The was also the orchestra led by Dav Mannes in the concerts at the M seum of Fine Arts, and a number others, including the New York Civ Orchestra, supported by the Depar ment of Education, and conducted Rudolph Thomas.

Boston. — During its season, t Boston Symphony Orchestra did fir American performances of Walton "Belshazzar's Feast," Markevitch "Rebus," Whithorne's "Mo Trail" and others. It was the on out-of-town orchestra which played the Chicago Exposition, including t Mid-Western city on a tour in Oct ber. Its conductor, Serge Kousse itzky, was also named joint conduct of the London Music Festival duri May, leading three of the six concer

Philadelphia. — Among the ma "firsts" of the Philadelphia Sy phony were Abraham Chasins' se ond Piano Concerto and Wern Josten's "Concerto Sacro." Wi this orchestra, Leopold Stokows continues his innovations and his e periments in radio work and in corded music.

Chicago.—The Chicago Sympho Orchestra, Frederick Stock, conduct did first performances of Miasko sky's Twelfth Symphony and of Felix Borowski's First Symphony.

Other Organizations. — Eugen Ormandy continues to lead the Minneapolis Symphony; Eugene Goossens heads the Cincinnati Orchestra; the Rochester Philharmonic plays under various hands; the Cleveland Symphony Orchestra has new players and a new conductor, Artur Rodzinski, who ventured a performance of "Tristan" on Nov. 30 with soloists from the Metropolitan and Chicago opera rosters, and new "plastic" settings by Frederic McConnell of the Cleveland Little Theatre; St. Louis has Vladimir Golschmann leading the Orchestra and building up the support of subscribers. Two orchestras for training professional players deserve at least passing notice. They are the National Orchestral Association in New York, Leon Barzin, conductor, and the Chicago Civic Orchestra.

SUMMER MUSIC

Series of concerts during the summer were sponsored by many groups. The Philharmonic had its usual 8-week season at the Lewisohn Stadium, with Van Hoogstraten, Barzin and Kindler for conductors. The Manhattan Symphony under Clifton and Plotnikoff did a series at Westport, Conn. The Musicians' Symphony Orchestra played at Rye in concerts modeled on the Boston Pops. Alexander Smallens guided the destiny of the Philadelphia Summer Concerts Association and arranged for concerts nightly from July 6 to Aug. 30. Boston had its 48th season of Pops and a number of Esplanade concerts in addition, both series played by members of the Boston Symphony and conducted by Arthur Fiedler. The New York Civic Orchestra launched a series of outdoor concerts. The Chautauqua Symphony Orchestra held its regular 5-week season. Opera flourished in New York, in Atlantic City, in Philadelphia, in Chicago and elsewhere through the blistering heat of an extreme summer. Sokoloff's orchestra played at Weston, Conn. Sandor Harmati led his group at Scarborough. Newark, Buffalo and Poughkeepsie had regular summer concerts. The Goldman Band, almost symphonic in its scope and instruments and of high artistic integrity, played nightly in New York City.

FESTIVALS

Library of Congress. — Festivals, serving to bring together music and musicians of real merit, seemed little affected by financial difficulties. Early in the spring, the Coolidge Festival at the Library of Congress encompassed a number of concerts which included Hindemith's Kammermusik, Ravel's Introduction and Allegro for harp, string quartet, flute and clarinet, Stravinsky's "Octuor" for winds, Copland's "Music for the Theatre."

Other Concerts. — The American Society of Ancient Instruments, Ben Stad, director, held its festival concert of Renaissance composers Feb. 16, in Philadelphia. The month of May included the Westchester County Festival, Albert Stoessel, director; the Ann Arbor May Festival, Earle Moore, director, with the world premiere of Howard Hanson's opera "Merrymount"; Cincinnati's thirtieth biennial May Festival, Eugene Goossens, director; the Bethlehem Bach Festival, with Bruce Carey succeeding to the conductorship held since 1900 and with such rare distinction by Dr. Frederick Wolle (died Jan. 20, 1933); American Music Festival at the Eastman School of Music in Rochester, Howard Hanson, director. The Brahms Festival held in Boston in April was sponsored by the Symphony Orchestra and Serge Koussevitzky. The second Yaddo Festival for Contemporary American Music was held near Saratoga Springs, N. Y., on Sept. 30 and Oct. 1. The Worcester County Musical Association held its 74th annual festival Oct. 2-7, Albert Stoessel musical director, and included in its program the Juilliard School performance of Cimarosa's "Secret Marriage," Stravinsky's Symphony of Psalms and V. Williams's "Toward the Unknown Region." On Dec. 16, Madison Square Garden was the scene of a Palestinian Festival, Emil Hilb and Eugene Fuerst, conductors.

Folk Festivals. — An American Folksong Festival was held in Western Kentucky in June, and another, called the White Top Folk Festival, in August at Marion, Va.

Chamber Music.—During September, a bronze tablet was dedicated to Elizabeth Sprague Coolidge, who has without any doubt done more for chamber music than any other living person, and the tablet was placed in the Temple of Music which she built many years ago on South Mountain, Pittsfield, Mass. There in 1918 she first assembled an international congress of musicians and music lovers. The annual festivals are now carried on in Washington and the music auditorium which she built adjacent to the Library of Congress. Edwin T. Rice delivered the address of dedication at Pittsfield. During October, the Librarian of Congress, Dr. Herbert Putnam, celebrating Founder's Day, awarded medals for service to chamber music to Ernest Hutcheson, the Pro Arte Quartet, and Adolfo Betti, for many years first violin and leading spirit of the Flonzaley Quartet which brought to the American public magnificent interpretations of chamber music for 25 years.

COMPOSERS AND THEIR WORKS

Ernest Bloch has completed a musical service for use in the Reformed Synagogue, a work commissioned by Felix and Gerald Warburg, based on research into ancient sources, and reputed to be a majestic and impressively beautiful work.

Arnold Schönberg, outstanding exponent of modernism in music, has come to the United States from Germany, and is teaching classes in composition in New York and in Boston, in the latter city at the newly formed Malkin Conservatory of Music where other faculty members include Eva Gautier, Roger Sessions, Arthur Fiedler, Renee Longy Miquelle.

League of Composer's Programs.—The Jan. 8 meeting of the League of Composers included Bloch's Piano Quintet, Gruenberg's ''The Creation,'' Saminsky's ''The Plague's Gagliada,'' Hindemith's ''Das Marienleben'' and Marion Bauer's ''Triste Noel.'' The February mee
ing listed an all American progra
and included music by Mark Wess
Suzanne Bloch, Vergil Thomson, Al
Lipsky, Israel Citkowitz and Vivia
Fine. In April the League sponsor
the first American stage producti
of Schöenberg's ''Pierrot Lunaire,
Leopold Stokowski, conductor, orche
tra of men from the Philadelph
orchestra, Mina Hager, soprano sol
ist. On the same program were t
Russian films with music compos
for them by Shostakovich and Dehev
The Dec. 17 program listed Magalo
Prokofiev, Chanler, Ives, Citkowit
Sessions, Naboukoff, Bowles and other

Miscellaneous. — Noel Coward
''Mirabelle,'' an operetta, was giv
at the Gayety Theatre on Jan.
Ferde Grofé's ''Tabloid'' was pe
formed on Jan. 25 for the first ti
by Paul Whiteman's orchestra. J
seph Streiner's ''Pan and Psyche
had first American performance
Feb. 12, Maria Kurenko, sopran
and the New York Chamber Mus
Society taking part. March 6 sa
Edgar Varése's ''Ionization f
Forty-One Percussion Instruments
performed at Carnegie Chapter Ha
Kurt Weill's opera ''Der Jassager
had its first American performance
the Playhouse of the Henry Stre
Settlement April 25, A. L. Engel, co
ductor. ''The Romance of a People,
the pageant of the Jewish Peop
was given at the Chicago Fair Sep
14 and subsequently. Isaac van Gro
was the director of the pageant an
arranged the musical setting, usin
ancient chants and folksongs of t
Persian, Arabian and Yemenite Jew
collected by Dr. A. D. Idlesohn, Pr
fessor of Jewish Music at Hebre
Union College, Cincinnati.

MUSIC RECORDS

Important recordings for the ye
include the following works: ''Mus
cal Appreciation in the Schoolroom,
in the Music Education Series,
double records, graded in 4 classe
accompanied by 550 pages of tex
Elbridge Newton, editor, records
New York Philharmonic Orchestr
Henry Hadley, conductor; Yehu
Menuhin playing Elgar's Violin Co

certo (Victor); Beethoven's Violin concerto played by Josef Szigeti and the British Symphony Orchestra, Bruno Walter, conductor (Columbia); Beethoven's Fifth Symphony, Felix Weingartner conducting (Columbia); Chaikovsky Symphony No. 3, London Symphony Orchestra, Albert Coates, conductor (Victor); Glazunoff's ''Scenes'', New Symphony Orchestra and Eugene Goossens (Victor); Gregorian Chant, *Missa pro defunctis,* sung by choir of Pius X School of Liturgical Music, (Victor); Wagnerian Symphonic Synthesis of Rheingold, arranged and led by Stokowski, played by the Philadelphia Orchestra (Victor); Mozart, Symphony No. 40, G minor, Bruno Walter and the Berlin State Orchestra (Columbia); Bach Concerto for Two Violins, Menuhin and Enesco (Victor); Schumann's ''Frauenliebe und Leben'' by Lotte Lehmann (Columbia); Brahms Album, sung by Rose Bampton and Conrad Thibault (Victor); Beethoven's Septet in E flat, Lener String Quartet and others, (Columbia); Debussy's Quartet for Strings, G minor, Pro Arte Quartet (Victor); D'Indy's ''Istar Variations,'' Piero Coppola and orchestra of the Paris Conservatory (Victor); Stokowski and the Philadelphia Orchestra in Wagner's ''Götterdämmerung'' (Victor); Prokofiev's Piano Concerto No. 3, composer as soloist with London Symphony Orchestra (Victor); Sibelius' Third and Seventh Symphonies (Victor); Schubert's ''Die Winterreise'' sung by Gerhard Hüusch (H. M. V.); Liszt's Piano Concert, No. 1, in E flat, Walter Gieseking and the London Philharmonic, Sir Henry Wood, conductor (Columbia); César Franck's Symphonic Variations, Walter Gieseking, pianist, with Sir Henry Wood and the London Philharmonic (Columbia); Ernest Bloch's Quintet for piano and strings, Alfredo Casella and the Pro Arte Quartet (H. M. V.); Sir Arthur Sullivan's ''Princess Ida'' by the D'Oyle Carte Company (H. M. V.); Bach's Goldberg Variations, played by Wanda Landowska (H. M. V.); First twelve of Bach's Forty-eight Preludes and Fugues, Edwin Fischer (H. M. V.); Brahms's Third Symphony, Mengelberg and Concertgebouw Orchestra (Columbia); Brahms's D minor piano concerto, British Broadcasting Co., Adrian Boult, conductor, Backhaus, soloist (H. M. V.); Brahms's Quintet for strings, Budapest String Quartet plays Hans Wahlke, second viola.

RADIO

The growing demand for fine music well performed is reflected in the musical programs of the year which have come over the radio. The New York Philharmonic, the Philadelphia Orchestra, the Boston Symphony Orchestra, the Minneapolis Symphony, the Rochester Civic, and orchestras assembled in many broadcasting studios have all sent out programs of high merit to interested listeners. Indeed, orchestral and operating broadcasts, ensembles, small and large, have in some measure replaced the opera singers of earlier seasons. In all, the scope of the radio has broadened through the past year.

THE THEATRE

By J. Brooks Atkinson

Dramatic Critic, *The New York Times*

RETURNING PROSPERITY

The calendar year does not properly represent the dramatic season. According to the theatre's reckoning the first six months belong to the season of 1932-33, and the last six months represent the first half of the 1933-34 season. That point is worth making at this time because from January to June the fortunes of the theatre were at a low ebb. In fact it was not until late September that the theatre began to improve. Ten or twelve interesting and successful plays then poked their way into the theatre, and when the year was drawing to a close the popular impression was that the theatre had begun to return to prosperity. Some producers had left the theatre, probably for good; many others were inactive. Among the actors there was still great want. Probably the theatre will never again operate on the wide scale of the boom years when more than seventy playhouses in New York City alone had some reason for existence. Thirty playhouses are now sufficient for the needs of the New York theatre. The rest of the country has gone over to the talking pictures so generally that companies arranging extensive tours have great difficulty in finding available houses. But the close of the year 1933 finds the men of the theatre more hopeful than they have been for some time.

MAXWELL ANDERSON

''Both Your Houses.'' — Maxwell Anderson had the most conspicuous success of any playwright during the year. In the spring he received the Pulitzer Prize for his propaganda play entitled ''Both Your Houses,'' and in the autumn his poetic drama, ''Mary of Scotland,'' with Helen Hayes in the title role was considered the finest work of the season. Both were produced by the Theatre Guild. ''Both Your Houses'' was a drama of Washington politics. Taking as his protagonist an idealistic young Congressman from the hinterland, Mr. Anderson sought to show how bad deeds are traded for good in the Washington committee rooms. It had a circumstantial plot and it was also an enjoyable play, full of interesting characters. It was well played, especially by Walter C. Kelley, known on the vaudeville circuits as ''The Virginia Judge,'' who was amusing as a picturesque and fatherly old scoundrel. No one questioned the decision of the Pulitzer judges when they selected ''Both Your Houses'' for the prize.

''Mary of Scotland.'' — Two or three years ago Mr. Anderson wrote a distinguished verse drama about Queen Elizabeth, entitled ''Elizabeth the Queen.'' His ''Mary of Sc land'' is a firmer development in th genre. Writing about half the pl in crisp and meaty verse, and the r in prose that is equally pungent, M Anderson told his version of Mary Scotland's brief and tragic care when she sat on the throne in Sc land. Queen Elizabeth appears in t drama as Mary's disingenuous enem In the part of Queen Mary, He Hayes gives the grandest performa of her singularly versatile and guiling career. As Bothwell, Phi Merivale is also at the top of his be At the close of the year ''Mary Scotland'' was generally regarded the one play that has brought magn cence into the current theatre.

EUGENE O'NEILL

In addition to Mr. Anderson's t plays, the Theatre Guild produc Eugene O'Neill's first comedy, ''A Wilderness!'' and a free adaptati of Molière's ''School For Husbands ''Ah, Wilderness!'' is described the program as a ''comedy of rec lection.'' Abandoning his tragic ma for the moment, Mr. O'Neill we back to the humors and anguish middle class folks of the New E land of 1906. Some of it is auto ographical. Some of it is general. H all of it has been much relished theatregoers. Among other engagi qualities it presents George M. Coh in the ripest and most mettlesome p formance in his career along Broadw It is his first performance in a p written by someone else. Mr. O'N has written for him a richer part th Mr. Cohan ever wrote for himself.

JAMES HAGAN AND ELMER RIC

''One Sunday Afternoon.'' — T season included one more ''comedy recollection,'' entitled ''One Sund Afternoon,'' and another propagan play, ''We, the People,'' by El Rice. ''One Sunday Afternoon'' w the work of James Hagan. Mr. Hag wrote a sentimental fable about town bully who became a dentist, a he decorated it with a good ma familiar items from life at the tu of the century. Beautifully acted a nicely attuned production it had longest run of any play of the year.

"We the People."—In "We, the People" Mr. Rice struck out boldly at many of the social and economic injustices of contemporary life in America. Although it was not one of his most skillful plays, nor was it commercially successful, it left a considerable impression of strength, truth and conviction.

COMEDIES

"The School for Husbands," which has been moderately successful, is an adaptation from Molière by Lawrence Langner, who had laid out the work, Arthur Guiterman, who wrote the verse, and Edmond W. Rickett, who adapted old French songs for modern use and composed a few additional ones.

"Design for Living." — Noel Coward's "Design for Living" was one of the most fashionable comedies of the spring. Mr. Coward wrote it for Lynn Fontanne, Alfred Lunt and himself. It was the story of two good friends who were in love with the same woman who, in turn, returned their affection. Mr. Coward wrote the play brilliantly, and the three principal actors played it brilliantly. In fact, "Design for Living" was a brilliant success.

"Her Master's Voice." — As a matter of fact, comedies have been the backbone of the theatre revival. After having been fairly inactive in the theatre for nearly a decade Clare Kummer returned with a droll bit of make-believe entitled "Her Master's Voice." Although the story is of no particular consequence, the dialogue has that giddy humor which is her special gift, and the two chief parts are acted by Laura Hope Crewes and Roland Young, both of whom have been in Hollywood for several years. Played with great comic skill by these light-fingered actors, "Her Master's Voice" has been much enjoyed.

"She Loves Me Not." — Many theatregoers think that "She Loves Me Not" is the funniest comedy the theatre has displayed for many years. Howard Lindsay has made it into a play from a novel written by Edward Hope, and he has staged it with a series of platforms and wings that give the narrative great flexibility. The story concerns the plight of some Princeton students whose sense of the quixotic involves them in a mad and hare-brained escapade that gathers momentum all through the evening. "She Loves Me Not" is full of inexhaustible fooling.

"Sailor, Beware!" is in the same vein of wild and exuberant comedy. It is a collaboration by Kenyon Nicholson, author of "The Barker," and Charles Knox Robinson, and it is the saga of some U. S. sailors who pride themselves on their style of love-making. The authors have stuffed it with loud, bawdy dialogue, and the actors play it with a robust attack.

MYSTERY PLAYS

As usual there have been a good many mystery plays, most of them of inferior quality. But "Ten Minute Alibi," by Anthony Armstrong, pieced together an amusing evening out of an elaborate time device that created crime suspense, and "The Dark Tower," by Alexander Woollcott and George S. Kaufman, has the advantage of amusing dialogue and an excellent cast.

KATHARINE CORNELL

Although none of the usual run of dramatic plays has been of great distinction, there have been several thoughtful and effective offerings. Sidney Howard's "Alien Corn," in which Katharine Cornell appeared early in the year, was a vigorous drama of the intellectual and spiritual problems of instructors living in a Middle Western college town. After having failed with the more ambitious "Lucrece," Miss Cornell devoted the rest of the season to "Alien Corn," and in the autumn began an ambitious tour of the United States with "Romeo and Juliet," "Candida" and "The Barretts of Wimpole Street." During the course of the winter she hopes to establish a repertory company.

THE GROUP THEATRE

"Men in White." — After two years of bad fortune The Group Theatre re-established itself in the autumn with a serious drama by Sidney S. Kingsley, ''Men in White.'' It is the story of a brilliant young interne whose fiancée tries to persuade him to apply himself less closely to his profession during the years when he needs training and experience most. The story is told with unusual force and concreteness, and the Group Theatre endowed it with some of the finest acting our theatre affords.

IMPORTED PLAYS

''The Green Bay Tree.''—During the autumn and early winter Jed Harris returned to the theatre with two importations from England. Mordaunt Shairp's ''The Green Bay Tree,'' which is the more successful, is a skilfully written drama of a young man reared in emasculating luxury. When he wants to marry, his step-father, who is sybaritic to the point of abnormality, casts him loose, and he discovers that he cannot fend for himself. It is an interesting play, but the acting by James Dale, Laurence Olivier and Leo Carroll, under Mr. Harris' direction, is the most distinguished thing about ''The Green Bay Tree.''

''The Lake.''—For ''The Lake,'' which is the work of the late Dorothy Massingham and Murray MacDonald, Mr. Harris brought Katharine Hepburn back from Hollywood where her success had been extraordinary, persuaded Blanche Bates and Frances Starr to come out of retirement and engaged Colin Clive for the principal masculine rôle. ''The Lake'' is the story of a wealthy young lady in England who lacks strength of character, engages herself to marry a man she does not love, and discovers, only ten minutes before he is killed, that she loves him and that he is the refuge she needs. The play is weak in structure, and Miss Hepburn is not yet a dramatic actress of first quality. ''The Lake'' has been generally considered a disappointment.

MUSICAL COMEDIES

It has not been a brilliant year in the musical comedy field. Irving Berlin and Moss Hart are the authors of ''As Thousands Cheer,'' which is the most notable production of the year. ''Let 'Em Eat Cake'' is presented as a sequel to ''Of Thee We Sing,'' the musical satire by George S. Kaufman, Morrie Ryskind, and George and Ira Gershwin which won the Pulitzer Prize a year ago. Although many of the same characters appear in ''Let 'Em Eat Cake,'' it is commonly thought to be inferior to its predecessor.

MOTION PICTURES

BY MORDAUNT HALL

MOTION PICTURE CRITIC, *The New York Times*

THE INDUSTRIAL ASPECT

The year 1933 proved to be eminently satisfactory from the viewpoint of progress in the technique of talking motion pictures and also in the proportion of praiseworthy productions. From a pecuniary angle it was disappointing to producers. Except for a few instances, really worthwhile screen contributions were well patronized and the attendance figures for such films frequently broke records, but not for receipts, as the admission fees were considerably lower than they were in prosperous times. It was predicted b several major producers at the beginning of the year that their pictures would necessarily have to b of a more robust order—more hokum and less finesse to be precise. Th film makers, however, changed thei minds and became ambitious immediately after the presentation o ''Cavalcade'' in January to d something to vie with that picture This inspired piece of work, referre to in these pages last year, led t the discovery by Hollywood magnates that simplicity and wholesomeness were strong drawing cards. To some extent, this feature and others which followed in its wake encouraged some of the entertainment fashioners to eschew coarse incidents and vulgar stories; true there were some such offerings, which have persisted since the lowly birth of the motion picture, but they were happily fewer than ever.

"LITTLE WOMEN"

It is interesting to observe at this juncture that in November the RKO producing concern released its film version of Louisa May Alcott's Little Women, one of the conspicuously impressive films and one produced with admirable restraint. It proved to be more popular than any other picture, staying for three weeks at the Radio City Music Hall, which seats 6,400, and then drawing throngs to the smaller theatre in the Rockefeller Centre for a further three weeks. The Radio City Music Hall attendance record was held before that by ''Cavalcade,'' which was at that theatre two weeks. ''Little Women'' surprised most of the rival studios by its tremendous success, which was undoubtedly partly owing to the popularity of its principal player, Katharine Hepburn. It was looked upon as a good omen, one that would probably inspire the making of more pictures on its high level; yet one can scarcely blame producers for judging pictures, not on their artistic merits, but on their financial drawing power, for even those pictures put out in the economic depression of 1933, ranged in many instances in cost from $200,000 to $1,000,000.

"BERKELEY SQUARE"

The pictorial perfection of ''Berkeley Square,'' an adaptation of John L. Balderston's play, which in turn was suggested by Henry James's story, ''Sense of the Past,'' was praised highly by the press but it, unfortunately, did not meet with the popular favor it deserved. It is a metaphysical adventure and apparently motion picture audiences frown on this poetic style of dreaming as they do on satire. They want realism, and while they will patronize a film like ''Cavalcade'' because it has its thoroughly human side, its drama and its sentiment, and delight in ''Little Women'' because of its thoroughgoing truth and appealing genuineness, they find little that is entertaining in the idea of a man slipping back 150 years into the past, no matter how well it is produced or how expertly it is acted.

"MORGENROT" AND "HENRY VIII"

There were two noteworthy foreign productions—''Morgenrot,'' a German picture dealing with a U-boat's activities during the World War, and ''The Private Life of Henry VIII,'' a British offering directed by the Hungarian, Alexander Korda, with Charles Laughton in the title role. As there was a widespread boycott of German films because of Hitler's persecution of the Jews, what measure of success ''Morgenrot'' had is problematical. It was, however, a vivid conception of undersea warfare and the performers acting the roles of officers and sailors were so wonderfully real that they never for a moment gave one the impression of acting; to the onlooker they were not only men of the sea but men who were fighting for their lives. As for ''The Private Life of Henry VIII,'' it was excellent fun, and although it buffooned the much-married monarch, truth frequently gleamed in the course of the colorful scenes. It was finely acted by Mr. Laughton, and the dialogue sparkled with wit.

"STATE FAIR" AND "REUNION IN VIENNA"

In view of the fact that a review of 1933 should include several topnotch films, it should be reported here that an agreeable and natural homespun yarn was ''State Fair,'' which owed its origin to a book by Phil Stong. Will Rogers and Janet Gaynor were the leading performers in this tale of a week at a State fair. Robert E. Sherwood's play, ''Reunion in Vienna,'' with John Barrymore and Diana Wynyard, was excellent in film form.

"THE INVISIBLE MAN"

Two distinctly original productions were ''The Invisible Man,'' which was drawn from a story by H. G. Wells, and ''His Double Life,'' an adaptation of Arnold Bennett's novel, ''Buried Alive.'' ''The Invisible Man'' had as its leading player Claude Rains, whose face, because of the exigencies of the narrative, was beheld only for about half a minute at the end of the picture. The rest of the time Mr. Rains, in living up to the title of the story, was heard but unseen, or when he did appear his head was completely covered with bandages. The picture, which was a masterpiece of photographic ingenuity, is an excellent indication of the increasing intelligence of Hollywood offerings, for in the past no such fantastic tale would have been considered, let alone produced, and then also it would have been virtually impossible to find a player capable of doing the work demanded by the ''invisible'' role who would consent to appear in a production in which his face was not beheld except for a few seconds. It also speaks well for the motion pictures that James Whale, the director responsible for the stage productions of that notable play, ''Journey's End,'' and R. C. Sherriff, author of that play, worked together on ''The Invisible Man,'' Mr. Whale doing the direction from a script written by Mr. Sherriff. And it is interesting to observe that the film made from the Wells book, unlike ''Berkeley Square,'' met with public favor

"HIS DOUBLE LIFE"

Arthur Hopkins, the well-known stage producer, undertook to direct ''His Double Life'' and wisely engaged Roland Young to play the leading role and Lillian Gish to act opposite him. The fun in this diversion was perhaps a trifle too subtle for the general run of cinema patrons, but this does not alter the fact that the picture was one of the really fine achievements of the year. It was a most intriguing comedy concerning a famous artist so shy that few people knew him to speak to, who, after the death of his valet, took the name of that servitor and permitted the dead man to be interred in Westminster Abbey as himself. There are many other delightfully worked out ramifications to the tale. It is another narrative which would never have been considered in the past by studios, and one might gather that the film makers are gradually awakening to the fact that they cannot please all the people all the time, that there necessarily must be pictures made for the mass mind and others for more intelligent persons. Although this is certain to mean that less money will be spent on productions which are likely to appeal to relatively few patrons, it is likely to be a factor in discouraging puerile stories, which even now are seen much too often on the screen.

"DINNER AT EIGHT"

The picturization of ''Dinner at Eight,'' the wisecracking mixture of melodramatics and wit written by George S. Kaufman and Edna Ferber, was one of those films which draw from all social strata. It was smartly produced, with John and Lionel Barrymore, Marie Dressler, Billie Burke, Wallace Beery, Jean Harlow and others in its costly cast. It was directed by George Cukor, who was responsible also for ''Little Women.'' Incidentally another director who made two of the best films of the twelve months was Frank Lloyd, who turned out ''Berkeley Square'' and ''Cavalcade.''

"THREE LITTLE PIGS"

In a summary of the year's pictures, Walt Disney's cartoons well deserve to be mentioned, particularly the subjects in natural colors known as ''Silly Symphonies.'' The only reason for not including some of them among the best features of the year is because they run for only seven minutes and so fall into the short subject class. Nevertheless most of them were filled with imagination and charm and one, "Three Little Pigs," has probably been seen more times in theatres throughout this country and other lands than any other picture. The song accompanying this exceptionally clever film was picked up by the stage and the radio. It was translated into various languages, including Spanish and French. Mr. Disney's other productions include "The Night Before Christmas," which was released during the last week of 1933. If anything it was even better than "Three Little Pigs." His other "Silly Symphonies" are constantly being revived, particularly "Santa's Workshop" and "Noah's Ark."

INCREASE IN PICTURES

There was an increase in the number of pictures produced in Hollywood, and also in the number of foreign importations, which for the most part were exhibited at the small theatres. *The New York Times* reviewed 479 pictures in the past year, against 439 in 1932. Although there was no special technical improvement in sound and photography, the reproduction of voices and music and incidental sounds was more natural even that it was in the 1932 offerings. The directors also revealed far more imagination in handling their stories, particularly plays, than they did in the previous year.

THE SALARY QUESTION

With the adoption of the NRA code the motion picture industry came in for criticism from Washington for the enormous salaries paid to performers and studio officials. The heads of the major concerns took the stand that they would sooner pay a fabulous salary to a player who is popular with the cinema-going public than a small one to some actor whose name means little or nothing to the patrons.

ADVERTISING

It was decided to put a stop to salacious advertising in order to forestall possible government action. This lurid method of exploitation of pictures is something which was inherited from the old days when a shilling shocker on the screen was almost looked upon as a classical achievement. The advertising, however, has not improved generally and this undoubtedly has cheapened the aspect of the film industry. Often it is a series of absurd exaggerations, which instead of drawing people into the theatres is more likely to keep many away. J. J. McCarthy, who superintended the special theatre showing of such pictures as "The Birth of a Nation," and "The Big Parade," was appointed by Will H. Hays, President of the Motion Picture Producers and Distributors of America, to head an advertising censorship board.

CRITICISM OF SALACIOUS FEATURES

Although more intelligent and more wholesome stories were produced than ever before, the industry was taken to task for circulating reprehensible features. This resulted in the White House receiving something like 9,000 letters, and definite action on the vulgar and coarse productions being threatened by the Catholic bishops in congress assembled. Several major studio heads believe that cleaner, more sensible pictures will in the end bring increased theatre receipts, but there are others who insist that audiences want suggestive scenes.

RESIGNATION OF ROTHAFEL

S. L. Rothafel, the guiding light of the Radio City Music Hall and the smaller Rockefeller Center house which for some time was known as the RKO Roxy and is now called the RKO Centre, resigned in the first week of 1934. It was reported that Mr. Rothafel did not see eye to eye with his superiors in the matter of the length of productions nor concerning the necessity for comedy relief in his stage presentations.

XXVI. THE ARTS

MUSEUM ACCESSIONS

BY FLORENCE SEVILLE BERRYMAN

THE AMERICAN FEDERATION OF ARTS

GENERAL

The subject of acquisitions for the permanent collections of American art museums has so many facets that a straightforward record on either a quantitative or qualitative basis is not possible. The former is precluded by limitations of space; the latter because it is modified by such factors as place, resources of the respective communities, economic and cultural, and character of the population. It will be easily perceived that the acquisition of its first authentic old masterpiece by a small museum in a city comparatively remote from older cultural centers, is relatively as important as the Metropolitan Museum's acquisition of some world-famous masterpiece.

DEPRESSION FACTORS

Effects of the economic depression, too, are more difficult to estimate with relation to museum accessions, than to many other phases of the national life, because of such qualifying situations as the fact that a number of our largest and wealthiest museums have already covered the numerous fields of art so adequately, that lack of need and also lack of space would deter them from lavish purchases whether or not times were good or bad. On the other hand, the depression has probably stimulated many museum purchases, both because of the extremely low prices for which certain fine old masterpieces have been available, and also because the plight of the contemporary artist has awakened museum directors to the need for encouraging the talented living men, as more culturally important than the exclusive investment in art of the past. The director of the Metropolitan Museum of Art (New York City,) Herbert E. Winlock, said in his annual report for 1932, that the Museum's tendency for several years past had been to "limit its acquisitions by both purchase and gift to objects of major importance—few in number but of outstanding quality." This standard is, of course, the best measuring rod for all museum accessions, with the qualifying factors outlined above, kept in mind.

NELSON GALLERY, KANSAS CITY

The Opening.—The most important event of the year, with relation to museum accessions, was the opening of the William Rockhill Nelson Gallery of Art in Kansas City, Mo., Dec. 11, 1933. This gallery, founded with a bequest of $12,000,000 by the man for whom it was named, former owner of the Kansas City Star, possessed at the moment of opening with millions of dollars' worth of paintings and other collections comprehending the entire field of art, took its place with the outstanding museums of the United States. Although the permanent collections have been acquired over a period of three years, their being made available to the public now for the first time and news of many of them kept a secret until the opening, makes them accessions of 1933, for all practical purposes.

Outstanding Items.—The Director, Paul Gardner, mentioned the following as the highlights of the collections, which cover a period of about 4,000 years: A rare Egyptian tomb relief from Sakkara, dating from the 5th dynasty; a late 5th Century Greek lion and a magnificent bust of Hadrian; representing the Orient, a superb Chinese wall painting, a lion from the caves of Lung Mên, now non-existent through vandalism, and a carved Ming ceiling; from Italy, a Madonna and Child relief by Pietro Lombardi, one of the greatest Titian portraits in America of "Antoine Perrenot de Granvella," chief minister of Charles V, an equally great Veronese, "Christ and the Centurion"; Caravaggio's "Martyrdom of St. Ursula," and the inspired portrait by Tintoretto of Admiral Contareno, hero of Lepanto; representing Spain, El Greco's "Penitent Magdalene," an early Velasquez "St. Peter," and Goya's masterly portrait of "Don Ignacio Omulryan y Rourera;" from France, Poussin's "Triumph of Bacchus, two landscapes by Claude, Chardin's "Bubble Blowers" and an exquisite Seurat; from the Low Countries, Rembrandt's superb "Portrait of a Boy," the famed "Old Parr" of Rubens, and Hals "Portrait of a Man"; while England's contributions include Gainsborough's landscape "Repose," Raeburn's "Portrait of Master MacKenzie" and Hoppner's "Lady Fitzgerald." Other major accessions include a full-length limestone figure by Claus Sluter of St. John the Baptist, a polychromed sandstone Madonna and Child in high relief, French Gothic, *c.*1420; an Apostolic relief from the Cathedral of Vichy in Catalonia, Spain, and a 15th Century Spanish altar piece, one of the most complete retables to leave Spain; a grave stele, Six Dynasties, one of about six outside of China, and a colorful portrait by John Singleton Copley, "Sir George Cooke, Bart."

OTHER MUSEUM OPENINGS

The Worcester Art Museum (Mass.) opened its new building Jan. 6, in the High Renaissance gallery of which the recently acquired portrait of Diane de Poitiers by Francois Clouet, was the outstanding feature.

Seattle.—A new art museum was opened July 1. It is almost entirely the gift of Dr. Richard E. Fuller and his mother, Mrs. Eugene Fuller, who not only paid for the building but presented its chief permanent exhibits, including a superb collection of Oriental art. Outstanding items in this collection are a pair of life-size stone camels from a Ming tomb near Peking, each carved from a single block of stone; a stone Buddha from Chandara, north India, dating from the 2nd Century, A. D., a Khmer sandstone head of a Bodhisattva, excavated near Angkhor in Cambodia, nearly perfect in preservation.

The Springfield Museum of Fine Arts (Mass.) founded through the generosity of Mr. and Mrs. James Philip Gray, opened Oct. 7. Features of the opening exhibitions were the Museum's first acquisitions, four Eighteenth Century portraits: "Hon. Mrs. Hamilton" by Gainsborough, Romney's "Sir Archibald Campbell" and "Mrs. Fortnum" by Francis Cotes, all purchased last January, and Largillière's "Marquise de Rochebrune." The museum acquired three paintings by contemporary Americans from the opening loan exhibitions: works by Henry Lee McFee, Paul Sample and H. E. Schnakenberg.

METROPOLITAN MUSEUM OF ART

Paintings.—Described by Herbert E. Winlock, Director, as "the most important picture the museum has ever purchased out of its funds, perhaps the most valuable acquisition it has ever made," a diptych of the Crucifixion and the Last Judgment by Hubert van Eyck was acquired from the former Imperial Hermitage Museum in Leningrad. Each of the two sections of the painting, contained in its original frame, contains scores of tiny figures in fresh and well-preserved colors. "The Agony in the Garden," by Raphael, once a part of the famous altar piece "Madonna of San Antonio" given to the Metropolitan Museum by J. P. Morgan in 1916, and "The Adoration of the Shepherds" by Andrea Mantegna, both early works by the respective masters, were acquired from the collection of Clarence H. Mackay. A group of Byzantine and Russian icons, the majority dating from the 17th Century, was given by Mrs. Henry Morgenthau. Nine paintings by contemporary Americans were purchased, the artists being Adolphe Borie, Henry Lee McFee, David Morrison, Henry Varnum Poor and Raphael Soyer. Two paintings by early Americans were purchased, a portrait of Margaret Hall Harwood by Charles Willson Peale and George Caleb Bingham's "Fur Traders Descending the Missouri." An outstanding portrait by John S. Sargent came to the museum by bequest, and an early Inness, "Delaware Water Gap," was also acquired.

Sculpture.—An important collection of Assyrian sculpture was given by John D. Rockefeller, Jr., chiefly from the palace of King Ashurnasir-apal and Sargon, including a colossal winged bull and a winged lion from a gateway, and numerous slabs of sculptural decorations from walls. Also through the generosity of Mr. Rockefeller the Museum acquired the Lansdowne "Amazon." Another "Amazon," a statuette, acquired by the Museum, is the only copy of Pheidias' lost "Amazon" with a well-preserved head. Other acquisitions in sculpture included a Parthian Relief from the Palace of Hatra, 2nd Century, B. C.; an Indian relief of the Amaravati School, from Nagarjunikonda; a monumental Burgundian statue, 15th Century, of the "Virgin and Child"; and from C. T. Loo, a colossal granite hand of the T'ang dynasty, considered the most notable accession in Chinese art since 1930.

Decorative arts of outstanding importance, included three suits of armor which once belonged to Anne de Montmorency, Constable of France (1493-1567), Henry Herbert, 2nd Earl of Pembroke, and George Clifford, 3rd Earl of Cumberland, Queen Elizabeth's Champion on Queen's Day, respectively; the sword of Spinola, who served with Spanish forces in the Netherlands, and a Gothic tapestry, said to be the only surviving 14th Century example that pictures King Arthur.

NEW ENGLAND ART MUSEUMS

The Boston Museum of Fine Arts acquired a Persian stone relief from the palace of Xerxes in Persepolis, dating from the 5th Century, B. C., depicting a servant clad in Median costume; a late 12th Century Japanese scroll painting, "Kibi's Adventures in China," attributed to Mitsunaga of the Kamakura period, and more than 250 items of English silver, from an anonymous donor, 16th, 17th and 18th centuries, which make the Boston Museum's collection in this field one of the foremost in the United States. Notable works by American painters, contemporary and earlier, were also added to the collections:—works by Thomas Eakins, George Bellows, Mary Cassatt, Albert P. Ryder, John Singer Sargent and John P. Benson, also a canvas by Cezanne.

The Fogg Art Museum of Harvard University received from the Spanish Republic a group of objects, outstanding among which is one of four Romanesque columns which supported the altar over the tomb of St. James at Santiago de Compostela, dating from 1135. These gifts were made in gratitude for the Museum's return to Spain of the much desired historical treasure, the Sagahun Tomb. This international exchange was formally cited by the Office of Museums of the League of Nations. The Fogg also received as a gift from a group of anonymous donors a collection of Japanese prints, totalling nearly 4,000 items, assembled by Arthur B. Duel of New York, which contains many rare items.

Smith College Museum of Art acquired a polychromed wooden statue of a falconer, dating from *c.* 1430, from a small church in the French Pyrenees; a large painting by Edgar Degas, "Jephthah's Daughter," and Jacob Epstein's bronze head of Paul Robeson.

The Rhode Island School of Design, acquired two paintings by Daumier, one of them "Don Quixote and the Dead Mule."

MUSEUMS OF THE EASTERN STATES

The Albright Art Gallery (Buffalo), acquired a monumental Jain image of Mahavira in red sandstone, one of the most important pieces of Indian sculpture to come to this country in recent years; also a portrait by Monticelli.

The Museum of Modern Art (New York City), received from Edward M.

Warburg a bronze portrait bust by Jacob Epstein.

The Pennsylvania Museum of Art (Philadelphia), received a number of important gifts, including Constantin Brancusi's marble bust of ''Mlle. Pogany''; the Duplessis miniature of Benjamin Franklin from Mrs. Edward S. Harkness; a Bodhisattva head and bust, Chinese, Wei dynasty, late 5th Century, given by Mrs. Frank Thorne Patterson; head of an American Indian by Serge Yourievitch, given by Mrs. Marjorie Lea Hudson; Florentine Empire settee and chairs from Henry Livingston Lee, and a French carved walnut chest, 16th Century, from Samuel W. Morris.

MUSEUMS OF THE MIDDLE WEST

The Cleveland Museum of Art made nine important acquisitions, the most outstanding being a small brass figure of Vishnu, 12th or 13th Century; a copper-gilt Viennese reliquary in fine condition, of the early 14th Century, decorated in engraved designs and cabochon jewels, including a Madonna and Child in low relief; two Indian paintings, a Rajput 17th Century and a Mughal, 18th Century, and a rare Dürer woodcut, ''The Four Horsemen of the Apocalypse'' from the Print Club of Cleveland. Mrs. Henry A. Everett gave the Museum a painting by Arthur B. Davies and a Whistler pastel. Paintings by E. Part Gerald and Jack J. Greitzer were also acquired.

The Toledo Museum of Art received three important gifts: From Lucien Demotte, a Gothic stone figure of St. Joseph of Aramathea, dating from 15th Century; ''The Hon. Mrs. Watson'' by Sir Joshua Reynolds from Arthur J. Secor, and a bronze portrait bust ''The Duchess of Hamilton'' by Jacob Epstein, presented by Stevenson Scott.

Cincinnati Art Museum acquired an important ''Family Group'' painted by Cornelis de Vos.

John Herron Art Institute of Indianapolis purchased Renoir's ''Jeune Fille au Chapeau,'' its first French impressionist painting.

The Art Institute of Chicago acquired ''Portrait of a Girl'' by Arent de Gelder, *c.* 1690, and four rare prints, woodcuts by Holbein, Dürer and Hieronymus Cock, and an anonymous engraving, 15th Century. The Institute received from Mr. and Mrs. Charles H. Worcester a painting, ''Beggar Boy,'' by Giovan Battista Piazetta, and from Mr. and Mrs. Thomas C. Russell a canvas by Jan Breughel, ''Village and River Scene.''

The Detroit Institute of Arts received three paintings in memory of the late Julius H. Haass, a tondo by Albertinelli, a study by Rubens, and ''The Ruins of Castle Brederodo,'' considered by experts one of the most important paintings by Cuyp in America.

Milwaukee, Institute of Arts acquired a painting ''Peasants Playing Bowls Outside a Tavern'' by David Teniers the Elder.

The Institute of Arts of Minneapolis reported some exceptionally notable accessions: a marble head of Aphrodite, Greek, 4th Century, B. C.; a small stone carving of the German late Gothic period (*c.*1500) depicting Eloi, patron saint of goldsmiths, armorers and blacksmiths, shoeing a horse's leg, this statue once belonging to the Kaiser Friedrich Museum in Berlin; a life-size bronze bust of an aged patrician of Padua, early 16th Century, attributed to Bartolommeo Bellano, and one of the finest known paintings by Chester Harding, ''Portrait of Mrs. Mary Martin Kinsley.''

St. Louis' City Art Museum acquired three works of mediaeval sculpture limestone heads of the 12th, 13th and 14th centuries; the first and third represent saints, the 2nd and most important, a king, either French or English. This Museum also acquired a Romanesque portal of limestone from northeastern France; paintings by Tiepolo and Giovanni Pittioni, and an altar decoration from Avignon, 15th Century, and three paintings by contemporary Americans—Alexander Brook, Eugene Speicher and Maurice Sterne.

MUSEUMS OF THE FAR WEST

The Arizona Museum (Phoenix), received as a gift from Samuel Henry Kress a painting, "The Madonna Enthroned with the Child and Four Saints" by Girolamo Genga, said to be the first authenticated old masterpiece acquired by an Arizona museum.

The Denver Museum acquired a painting by George Fuller, "Child with Bowl."

The M. H. de Young Memorial Museum (San Francisco), received a very important addition to its collections: Copley's portrait of Major Patrick Campbell.

The Portland Art Association received by gift the Mary Andrews Ladd Collection of Japanese Prints, containing 750 items.

MUSEUMS OF THE SOUTHERN STATES

District of Columbia.—The Corcoran Gallery of Art purchased three paintings from its 13th Biennial Exhibition of American Painting: George Luks' "Woman with Black Cat," David Silvette's "Thornton Nye of Wytheville," winners of 1st and 2nd prizes respectively, and John Sloan's "Yeats at Petit-Pas." The Fine Arts Division of the Library of Congress established a cabinet for original American illustrations, through the efforts of William Patten who assembled the nucleus for a superb memorial to American illustrators.

The Baltimore Museum of Art received from Etta Cone the complete collection of illustrations by Henri Matisse for the poems of Stephane Mallarmé, original etchings, drawings and artist's proofs.

The Richmond Academy of Arts acquired a sculptured figure by Attilio Piccirilli, entitled "Spring Dream."

The High Museum of Art (Atlanta), purchased Frank Duveneck's "Portrait of an Artist."

The Dallas Museum of Fine Arts purchased a portrait by Anthony Van Dyck, "The Countess of Oxford," dated about 1638.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN ACADEMY OF ARTS AND LETTERS, 633 West 155th St., New York City.

AMERICAN ACADEMY IN ROME, 101 Park Ave., New York City.

AMERICAN CERAMIC SOCIETY, 2525 N. High St., Columbus, O.

AMERICAN FEDERATION OF ARTS, The Barr Bldg., Faragut Sq., Washington, D. C.

AMERICAN FINE ARTS SOCIETY, 215 W. 57th St., New York City.

AMERICAN INSTITUTE OF ARCHITECTS, 522 Fifth Ave., New York City.

AMERICAN NUMISMATIC SOCIETY, 156th St. and Broadway, New York City.

AMERICAN SCENIC AND HISTORIC PRESERVATION SOCIETY, 287 Convent Ave., New York City.

ARCHAEOLOGICAL INSTITUTE OF AMERICA, New York University, University Heights, New York City.

ARCHITECTURAL LEAGUE OF NEW YORK, 115 E. 40th St., New York City.

ART ALLIANCE OF AMERICA, 65 E. 56th St., New York City.

ART CENTER, INC., 65 E. 56th St., New York City.

ARTISTS GUILD, 480 Lexington Ave., New York City.

FINE ARTS FEDERATION OF NEW YORK, 215 W. 57th St., New York City.

GRAPHIC ARTS BOARD OF TRADE, 291 Broadway, New York City.

HISPANIC SOCIETY OF AMERICA, THE, 156th St., West of Broadway, New York City.

MUNICIPAL ART SOCIETY OF NEW YORK, 119 E. 19th St., New York City.

NATIONAL ACADEMY OF DESIGN, 175 W. 109th St., New York City.

NATIONAL ASSN. OF WOMEN PAINTERS AND SCULPTORS, 42 W. 57th St., New York City.

NATIONAL INSTITUTE OF ARTS AND LETTERS, 633 W. 155th St., New York City.

NATIONAL SCULPTURE SOCIETY, 115 E. 40th St., New York City.

NEW YORK SOCIETY OF ARCHITECTS, 101 Park Ave., New York City.

NEW YORK SOCIETY OF CRAFTSMEN, 65 E. 56th St., New York City.

SOCIETY OF ILLUSTRATORS, 65 E. 56th St., New York City.

SOCIETY OF INDEPENDENT ARTISTS, INC., 54 W. 74th Street, New York City.

DRAMA

AMERICAN DRAMATISTS, 9 E. 38th St., New York City.

AMERICAN SOCIETY OF COMPOSERS, AUTHORS AND PUBLISHERS, 1501 Broadway, New York City.

DRAMA LEAGUE OF AMERICA, Hotel Barbizon Plaza, 58th St. and 6th Ave., New York City.

ENGLISH FOLK DANCE SOCIETY, 159 E. 33rd St., New York City.

EPISCOPAL ACTORS GUILD, 1 E. 29th St., New York City.

FEDERATION OF MOTION PICTURE INDUSTRY OF AMERICA, 1440 Broadway, New York City.

INTERNATIONAL THEATRICAL PLAY BUREAU, 223 W. 46th St., New York City.

MOTION PICTURE DIRECTORY CO., 1071 Sixth Ave., New York City.

MOTION PICTURE PRODUCERS AND DISTRIBUTORS OF AMERICA, INC., 28 W. 44th Street, New York City.

THEATRE GUILD, INC., 243 W. 52nd St., New York City.

MUSIC

AMERICAN GUILD OF ORGANISTS, 217 Broadway, New York City.

CANTORS REGISTRY, 955 St. Marks Place, New York City.

CHORUS EQUITY ASSN. OF AMERICA, 110 W. 47th St., New York City.

GRAND OPERA CHORAL ALLIANCE, 678 Eighth Ave., New York City.

JEWISH THEATRICAL GUILD, 1560 Broadway, New York City.

NATIONAL BUREAU FOR THE ADVANCEMENT OF MUSIC, 45 W. 45th St., New York City.

NATIONAL MUSIC LEAGUE, 113 W. 57th St., New York City.

OPERA AND DRAMA SOCIETY, 1730 Broadway, New York City.

ORATORIO SOCIETY OF NEW YORK, 113 W. 57th St., New York City.

PHILHARMONIC-SYMPHONY SOCIETY OF NEW YORK, 113 W. 57th St., New York City.

DIVISION XXVII

EDUCATION

ELEMENTARY EDUCATION

By F. C. Borgeson

Associate Professor, New York University

GENERAL

Significant events in education are usually the results of long-time growth and development. It is therefore difficult, if not impossible, to present a picture of the status of elementary education in the United States during 1933 without including some important happenings prior to that year, and in addition suggesting trends of the immediate future. The outstanding problem of elementary education for the current year has been that of adjusting the educational program in terms of the necessary retrenchment in school budgets throughout the country. New types of frontier problems in education have come to the fore because of increased pressure of economy.

In addition to the necessary economies that immediately affect the school and its program, the very causes of this retrenchment on the part of the schools constitute critical problems that the school itself is finding it necessary to include in its curriculum. Social, as well as economic changes, some of them veritably colossal in nature, have created serious problems for classroom teachers and education leaders. Frontier problems that leaders in elementary education find it necessary to consider today that they were not conscious of a few years ago, center around such things as crime, dishonesty in business relations and governmental affairs, short working hours with large amount of leisure with its accompanying problem of adult education, community statesmanship, education for homemaking and character building. These are but a few of the problems that might be used to illustrate the point. At last educators are awakening to the fact that public schools throughout the country are far behind the needs emphasized by recent social, economic and political changes.

THE DEPRESSION AND THE SCHOOLS

Want of Emergency Aid.—Never has the profession been so forcibly impressed by the fact that schools do not immediately reflect the business conditions of the country. It may have been that, back in the fall of 1929, business and industry felt the impact of an economic crash. It has taken at least three years before a similar crash made itself felt in the public schools of the country. It was really not until 1933 that the educational offering was seriously handicapped and endangered. Now we find a great variety of conflicting figures as to number of schools closed, number of children denied opportunities of free publicly supported education, number of teachers out of work, the amount of salary reductions, the amount of teachers' salaries still unpaid, and the like. The leading article of the *Progressive Education Magazine* for December, 1933, quotes that recent emergency legislation in Washington provides for the spending in 1933 of $235,000,000 for battleships and $400,000,000 for public roads, while to date the Federal Government has found it impossible to set up any provisions for giving emergency aid to public education programs of the respective states, this in face of the fact that the school funds for the current year have decreased by $368,000,000.

Sharp Curtailment of Facilities.—According to George F. Zook, Federal Commissioner of Education, more than 2,250,000 children were denied schooling facilities during the winter of 1933-34. Millions more, says Dr. Zook, have had their school year shortened by boards of education seeking desperately but in vain for the cash to pay teachers' salaries and keep schoolhouses in a minimum of repair. Our Commissioner also reports that when the schools opened in the fall of 1933, more than two thousand rural schools had their doors boarded. As the school year progressed, many more were abandoned or took indefinite vacations because of inability to meet current expenditures.

Schools Closed.—According to Dr. John K. Norton, Chairman of the Joint Commission on the Emergency in Education of the National Education Association and the Department of Superintendence, only forty schools in the whole nation were actually closed in November, 1932. By April, 1933, just after the bank moratorium, 5,825 schools had closed. Dr. Norton goes on to say that it is now estimated on the basis of figures received from county superintendents from all parts of the nation that, by April, 1934, there will be 20,300 schools closed, enrolling 1,250,000 children. The outright closing of thousands upon thousands of schools is not only sensational but also a pathetic commentary on what could happen to a wealthy nation when personal greed, best personified by the majority of captains of industry, continues to hold such a dominating position among the motives and purposes of men in a democratically organized society. Not until personal greed and selfishness have been displaced by the motive of service, will either the nation or its schools begin to stage anything like a significant recovery. The desperate efforts of President Roosevelt to bring this very thing about can never be fully realized until it incorporates a vigorous program of Federal support of education. While the outright closing of thousands of schools does give an index of the plight in which education finds itself today, this condition is again emphasized when it is reported that a large majority of America's great cities, in which we find the nation's wealth concentrated, have shortened their school years from one to two months. In the rural schools alone, more than a million children are receiving less than six months of schooling during the current year.

Salary Cuts and Deferments.—With more than 200,000 registered teachers out of jobs, and thousands more continuing on the job without salaries being paid, during the current school year over 209,000 teachers, that is one teacher in every four, will receive a salary lower than would be legal in a business establishment exhibiting the NRA Blue Eagle. The average pay for a rural teacher during the winter of 1933-1934 is $750 for the year, according to Commissioner Zook. But, he continues, 84,000 will receive less than $450, while in at least eighteen states teachers are being paid in warrants cashable, if at all, in discounts ranging from five per cent up. Salaries in states have been reduced twenty to forty per cent, while it is reported that Michigan contemplates lowering the pay of her teachers sixty per cent unless more money is forthcoming.

Tragic Situation in Chicago.—Chicago has been publicized for its failure to pay teachers. One committed suicide because she was hungry. Others endured untold hardships. Instead of improving, the situation has become steadily worse, and teachers are still in a desperate plight. According to a statement appearing in the *Chicago Principals' Club Reporter* for November, 1933, the last money which came to Chicago teachers was for January, 1933, and they received a payment of two weeks' cash and four weeks of tax warrants, bringing payment of salaries up to Feb. 15. For over three years, with the exception of a few months in the winter of 1930-1931, the Chicago teachers' salaries were never paid on time. It is known that some teachers have been forced to dispose of scrip at discount sometimes as high as 35 per cent. Thus we see that in one of the wealthiest cities in the world, the schools have been kept open during the past two years by means of an enforced loan from a group of public servants numbering less than half of one per cent of the total population.

Privations of Teachers.—From correspondence received at the headquarters of the National Education Association, it is discovered that teachers are actually doing without necessary clothing and even food in some cases. One principal reports that he loaned one of the teachers money from the athletic fund to buy groceries, and was shocked when she asked permission to run home to give the money to her mother, saying that they did not have sufficient money for the noon meal.

Sectional Comparisons. — While it can be said that almost from one end of the nation to the other practically all of the 25,000,000 to 28,000,000 school children have suffered by varying degrees of retrenchment in educational program, it is quite apparent that in some sections the schools have been but slightly affected, while in others the continuation of their very existence is being challenged. It would seem that in the extreme northeast, primarily in New England, with certain exceptions, the schools are maintaining their own. On the other hand, sections experiencing the greatest difficulties have been in the deep south and the middlewest. For example, in terms of the largest number of schools actually closed, the states of Kansas and Arkansas seem to be most severely affected.

Resources and Facilities. — The most inclusive summary statement covering the effect of the current depression on education appears in the *Research Bulletin* of the National Education Association for November 1933, which came from the press just as the year came to a close. This bulletin summarizes the present educational crisis in eight words: Responsibility increased; resources decreased; services reduced; inequalities continue. While the schools are required to provide educational facilities for 1,400,000 children more during the current year than they did in 1927, they have approximately $400,000,000 less with which to finance that educational program. School programs in many cities are now entirely without health service or without instruction in art, music, physical education, home economics, or industrial arts. Whereas the nation was spending over $84 per child enrolled in public schools in 1927, during the school year 1933-1934 they were spending less than $67 per child enrolled. Roughly, $400,000,000 was spent in capital outlay for public elementary and secondary schools in 1927. Less than $100,000,000 is being spent for the school year ending June, 1934. During the current school year, the total number of teachers employed in the public schools has been reduced to approximately the same number used in 1927, but these employees are expected to give instruction to 1,400,000 more children than in 1927.

Putting the Case Before the Public.—The lay public is gradually becoming informed of the present tragic conditions of the public schools of the nation. This is made possible largely by splendid coöperation of national organizations in charge of radio broadcasting, and such popular magazines with national circulation as *The Survey, Atlantic Monthly, Cosmopolitan, Harper's, Country Gentleman, Scribner's, Good Housekeeping, Outlook* and *Independent, Nation, New Outlook,* and the *Literary Digest.* Such magazines are bringing the case of the public schools to the nation in a splendid way.

FRONTIER PROBLEMS IN ELEMENTARY EDUCATION

Trends and Discussions. — While the economic condition is so much in the forefront that it commands virtually all our attention, there are significant trends and problems in elementary education that are rather characteristic of the past year or two and warrant specific mention. State and national conventions are giving considerable attention to survey views of the present status of elementary education, with special emphasis upon outstanding and so-called frontier problems in the field. Notable among these were the panel discussions on this subject at the meeting of the Department of Superintendence in Minneapolis, the Regional Conference of the Progressive Education Association in New York City, and the annual meeting of the New York State Elementary School Principals' Association.

Outstanding Problems.—In these discussions such problems as the following came to the fore: the need for every superintendent of schools in America to set up an experimental program somewhere along the line; the determination of what portion of the school budget should be spent upon a complete and thorough psychological study of the individual child, and a comprehensive and long-time study, probably financed by foundation funds, to discover, if possible, if there is any vital connection between the type of educational exposure to give to children of the elementary schools and the sort of adult citizenship that is manifest in the generation that follows.

Small beginnings are being made in a serious attempt to learn how to evaluate the new or so-called progressive education which the better schools are trying to provide for children, although the scientific group in the profession still look askance at the possibilities. A significant, but unfortunately unpublished doctor's study in one of the leading universities of the country, "A Comparative Study of the Growth of Children Under Traditional and Progressive Practices," gives promising results of the type of measurement that will undoubtedly be developed to evaluate the results of the new education.

The intelligent use of technological improvements in the processes of education is an unsolved problem, as is building the school into a definite part of the social order. The responsibility of the superintendent and of state education departments to place their stamp of approval upon those objectives that free teachers and children to do the things they ought to be doing, and a new and more plausible conception of what constitutes children's interests than that held by a great majority of people at the present time requires solution. Children's interests and children's caprices are not synonymous. A more adequate program for training teachers for character building is necessary. This program must result in such a radical change in classroom life and teacher techniques that our 800,000 public school teachers of America will actually be demonstrating in their daily work with children that civic and social attitudes children are developing actually are more significant than both trifling and significant knowledge and skill. The child's attitudes toward the place and function of arithmetic in his own life and in society is of greater significance than the mathematical skill and knowledge he is acquiring. As never before, there is the need for making any point in the educational ladder a possible terminal point, as well as a type of community statesmanship in which the principal and teacher extend their influence beyond the activities of the school itself.

Adult Education.—The use of the facilities of the elementary schools of the nation in a comprehensive program of adult education is gradually taking definite form. In addition to the rather meagre leadership that the profession as a whole has demonstrated up to now, the Federal Emergency Relief Administration has made definite plans whereby unemployed and other adults in need of further educational opportunities might receive these by using unemployed teachers, who are in need of relief, for instructional purposes. Local school leaders here and there throughout the nation, notably those in such communities as DesMoines, Ia., have set up worthy programs of adult education of a comprehensive nature. In addition to a great demand for extensive adult education programs, school leaders in all of the thousands of school districts throughout the nation need, as never before, to keep their public informed regarding the progress of the school education program.

Homemaking.—Despite the marked curtailment of such special educational services as provided in the fields of art, music, homemaking, physical education and the like, the lay public as well as the leaders in education generally are coming more and more to realize the imperative need of providing definite homemaking education for children in the upper elementary grades.

School Marking and Promotion.—Radical reform in our school marking and promotion systems still constitute a frontier problem. Nevertheless, encouraging forward steps are being taken in individual schools throughout the country in the elimination of such extrinsic motivation.

Better Rural Education.—Consolidation of small districts and the gradual elimination of the one-room rural school continues to be a serious problem. Increased impetus is being given to the demand for providing rural children with an education on a par with that of urban children.

Nursery Schools.—A definite move is on foot to extend school services downward to include the pre-school child. A program is now under way to set up 2,000 nursery schools throughout the country. These schools will not only provide better opportunities for normal growth for thousands of children in less fortunate homes, but also will make possible the beginnings of a significant program of parent education. This program is being made possible through employing some of the thousands of unemployed teachers and is a part of the general recovery program sponsored by President Roosevelt.

Social Service.—Proper and adequate solution of social service programs now being sponsored by school teachers throughout the country is yet to be carried out. Unquestionably there is an unequitable distribution of the burden both within and without the profession when it comes to supporting social welfare relief. Still the school teachers carry on in a noble way, despite salary reductions, unpaid salaries, reduction in the number of teachers, increase in teaching load, etc. The extensiveness of relief to needy children and their families can be pictured by giving one illustration. In New York City alone school relief committee handled over $3,700,000 up to Nov. 30, 1933. At that date they were feeding approximately 67,000 children each day.

Research and Practice.—A reduction of the enormous gap that continues to exist between educational research findings and the application of these findings in schools throughout the country continues to be one of the profession's most serious problems. Even in many so-called better school systems it is extremely difficult to move those in charge to come to the point where they are willing to make themselves aware of the significant findings of educational research and see to it that their local educational practices take advantage of this new knowledge. This can be illustrated in most any local school system in such specific learning situations as column addition, silent reading, presence or absence of manuscript writing, flash cards, etc.

Building and Equipment. — Better elementary school buildings and better equipment in these buildings are unquestionably needed in the majority of the school districts throughout the country. Especially is this true when the elementary school buildings are compared with the secondary school buildings in the same community. Despite this fact, communities continue to make injudicious decisions in their expenditure of capital outlay. For example, in one small community in the East known to the writer, the local newspaper reported the completion of a new school building that cost the county $650,000. This sum was equal to half the total evaluation of the property in the district. The very next item in this particular local paper reported that 450 farms were sold the day before at the courthouse for taxes. Ninety per cent of these were bid in by the community. Along with this, we have the spectacle in hundreds of other school districts of the school being closed while a hard-surfaced road, costing $7,000 a mile to construct, is being built past the school.

Class Size.—The proper class size continues as an unsolved problem. Research does reveal that classes are getting larger, that for certain types of learning large classes do as well if not better than small, and that for other types of learning small classes are apparently to be preferred. The most significant research to date, because the best controls were provided in it, dealing with class size in the elementary school, was that conducted by Whitney in Colorado. He concludes that small classes are in general to be preferred over large classes in the primary grades. Even in this research, however, such significant outcomes in education as are exemplified by the general term, character growth, were not taken into consideration.

Controversial Issues. — Certain leaders in education are convinced that the inclusion of definite controversial issues would significantly enrich the elementary school curriculum. It remains a frontier problem, however, inasmuch as the majority of the lay public is not ready for school children to discuss the pros and cons of the programs of Hitler, Mussolini, and similar leaders, the issues of local elections, the desirable and undesirable phases of state and Federal governmental policies, the causes for crime waves and various forms of racketeering. Probably the majority of elementary school educators would question the desirability of including such controversial issues, of any type of controversial issue, in the elementary school program. Probably no elementary school group has yet discovered a satisfactory way of introducing significant controversial issues. In the meanwhile, it is unquestionably the responsibility of every teacher to awaken himself to an awareness of the basic causes underlying major controversial issues in the political, economic and social life of the nation.

Progressive Education.—The progressive education people themselves still feel they have failed to analyze the proper conception of freedom and control in the school. How we shall arrive at the most desirable practice of self-control on the part of children, is still a problem to conjure with. If we are to educate the whole child, each teacher must be convinced of the necessity of familiarizing himself with the life of the child outside the school, which means that the teacher must get into the homes of a great variety of problem children.

THE TREND IN BETTER ELEMENTARY SCHOOL EDUCATION

Less time is spent on the three R's, yet more effective and lasting results are being realized. Repetition in content subjects is reduced to the minimum; the challenge of thought-provoking experiences through the episodic and dramatic are being increased to a maximum. Exploratory subjects and activities somewhat comparable to the type of thing that the junior high school stands for are gradually being introduced into the elementary grades to release the creative power of pupils. A great variety of life-like activities that might be thought of as school life activities are enriching the lives of the children and strengthening desirable character qualities through providing such indispensable experiences as assuming responsibilities, making decisions, and directing activities on the part of the children themselves. Through this type of activity, school life is becoming a joyous and delightful thing, as it should be, to the child.

The unit of work, sometimes labeled unit teaching or activity program, incorporates the most recent development in educational method. It is closely akin to Morrison's learning unit and Kilpatrick's project method. In the extent to which it tends to be guided by organized subject matter it leans toward the learning unit idea; in the extent to which it capitalizes upon organizing learning around problems growing out of children's immediate interests and experiences, it reflects the project method. At its best, the unit of work idea takes into account both of these major concepts.

The Committee on Informal Teaching of the New York State Association of Elementary School Principals has made a study of several hundred units of work presented by classroom teachers of the State. The findings of this study now in press will appear as the Fourth Report on Cardinal Objectives in Elementary Education published by the New York State Department of Education under the general heading, ''An Outline of Trends in Unit Teaching''. The analysis discloses certain marked trends in the development of unit teaching. Seven major trends that tend to appear in all the units submitted are as follows:

The Increased Opportunity for Social Experiences among Children.

The Increasing Emphasis upon Economic and Social Understandings which Unite the School More Closely to the Community.

Determining the Place of Drill in the Activity Program.

The Selection and Organization of Subject Matter around Problems Resulting in an Integration of Learning.

The Development of Research Attitudes and Technics among children.

Provision for the Development of Individual Aptitudes and Interests.

Growth of Analytical Attitudes among Teachers toward New Technics and Methods.

Dr. J. Cayce Morrison of the New York State Department of Education implies in the December issue of Educational Method that unit teaching is symbolic of a trend toward uniting the social and the scientific aspects of the teaching progress. The extent to which this trend is under way is emphasized by the increased amount of literature appearing in this field. In a recently published ''Catalogue of Units of Work, Activities, and projects of 1932'', more than 7,000 items are listed.

An excellent illustration of the type of service that local leaders can and should be giving their teachers in training them for effective use of the unit of work idea, is the series of bulletins that emanate intermittently throughout each school year from the office of Assistant Superintendent Lane of Los Angeles. Mr. Lane sends out detailed mimeographed materials to all his elementary school principals reporting successful units of work that have been developed in his district. These materials provide the aim of the unit, what the teacher needs to know, considerable factual material of value both to teacher and children, specific approaches that are made, lists of activities experienced by the entire class and by groups of individuals within the class, major outcomes, and useful bibliographies.

TRAINING ELEMENTARY SCHOOL TEACHERS

Courses. — The trend in training teachers to meet new demands placed on them by the present national crisis may be indicated by listing the types of new courses provided by the better teacher-training institutions in the country. The catalogue of one institution lists such courses as the following for teachers: Education for Social Reconstruction; Youth Faces the New World; Crime—A Challenge to America; An Experiment in Constructive and Independent Graduate Study; Economy in Education That Means More Than Spending Less Money; Science and the New Civilization; Industrial Education in the Making; The Schools and Their Critics; Constructive Leisure or Disintegrating Idleness.

Coöperative Schooling. — An outstandingly sucessful venture in the training of teachers for the new elementary school is that taking place in the Coöperative School for Student Teachers in New York City. This school takes only students with a college degree or its equivalent and places all their students in coöperating progressive schools as student teachers four days of each week. The other two days are spent in the training center where students concentrate their time over short periods on subjects such as environment, geography, map-making, observation and record taking, child development, curriculum planning, techniques of tool subjects, design work, shop, language and music. Throughout the year the students have a limited amount of time devoted to such activities as the dance, dramatics and the voice, the development of personality, and the like. A year ago, at the close of their first year in the life of the Coöperative School, every student was placed in a full-time position. This is a record that few, if any, other institution training elementary school teachers can boast of.

SECONDARY EDUCATION

By Philip W. L. Cox

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GENERAL

The year 1933 has seen little outward change in the secondary schools of America. Teachers and administrators have striven to hold the ground gained during the previous decades, —gain in non-academic offerings and enrolments, safeguarding of the semi-curricular status of the social-integration activities, expanded social studies and physical education offerings, displacement of many specialized courses by general ones, decreased emphasis of special college preparatory curricula, new opportunities in vocational or semi-vocational subjects. Very few faculties have been so rash as to propose innovations that might arouse public discussion of high school curriculum practices.*

EXPANSION AND CONTRACTION IN SECONDARY EDUCATIONAL SERVICES

Results.—A critical period of conflicting pressures and opportunities is being experienced by the secondary schools. The demands put upon the high schools and the services which they might render are greater than ever before. The retrenchments in financial support have, nevertheless, seriously handicapped the efforts of the high schools to fulfill even their normal functions.

Enrolments in the senior high school grades have increased by leaps and bounds. In part these increases have resulted from the determination of parents that their unemployed adolescent children shall not remain idle; hence, in many urban communities practically the entire graduating classes from junior high schools have entered the tenth grades of the senior high schools, while many graduates of the senior high schools have returned thereto for post-graduate courses. In part, the increase, especially through the junior high school and the first year of the senior high school, has been the result of state compulsory school attendance laws reënforced by the abolition of child labor in industrial and commercial establishments by the Codes adopted under the administration of the National Recovery Act. Since industrial states generally require full-time attendance in school of all normal unemployed youths until they are sixteen, seventeen, or even eighteen, high schools are generally crowded far beyond the capacity of plants, and class-sizes are often increased to numbers that heretofore have been believed to be ineffective.

Expedients to Meet Increased Attendance.—Results of this crowding have been the opening up of annexes under acting-assistant principals, double sessions whereby the higher grades attend in the morning and the lower grades in the afternoon, or *vice versa*, the transformation of continuation schools into all-day schools for unemployed youths who cannot be cared for in regular high schools, and in one city, at least, the abolition of junior high schools by returning seventh- and eighth-grade pupils to elementary schools to make room for tenth-grade pupils in the junior high school buildings. Meantime, the upward extension of secondary education beyond the twelfth grade—long urged by educational leaders and partly accomplished by the establishment of municipal and district junior colleges—is being realized through the influx of young adults into high schools. New Jersey, for example, had nearly 2500 post-graduates in its public high schools in 1932-33.

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* See L. V. Koos, "The Changing Curriculum in Secondary Schools based on Findings of the National Survey of Education." (*Secondary Education.* Vol. II, No. 4. September, 1933.)

Curriculum Adjustments.—Many of the youths who are now enrolled in high schools have little interest in academic studies. If the schools had adequate resources in plant and teaching personnel, they could render most valuable services to these youths, as, indeed, some schools located in relatively wealthy suburbs are doing. A broad curriculum including many phases of art, music, shop work, home economics, dramatics, non-laboratory science, health and physical recreation is obviously needed if non-academic pupils are to be educated in the high schools. The utter impossibility of teaching mathematics, foreign languages, book history and science, and the like to huge classes of youths, the majority of whom feel no enthusiasm for any of these subjects, who are in many cases under-nourished and emotionally disturbed by home conditions has finally resulted in a readiness on the part of all sensitive teachers and administrators to free youths from the prescription of verbal and abstract subject matter set forth in syllabi to be learned for test purposes.

Service Limitations.—With all of these services demanded of the secondary schools to meet the needs of school youths who attend them because of inertia or of compulsion of parents or of law, the facilities of the school have been seriously curtailed partly through actual financial stringency of communities in the midst of depression and partly in response to the popular psychology of fear and deflation. Paradoxically the departments which have most frequently been reduced are the ones that are potentially most valuable for many of the non-academic pupils as well as for those docile youths who submit to bookish class-room procedures but who might become educationally enthusiastic in expressional classes. Plant repairs and expansions have been postponed, and equipment, text-books, and supplies have been inadequately provided. Teachers have, therefore, been forced to use make-shift arrangements; academic classes are held in auditoriums, shops, studios, and hallways; lectures and dictation of outlines have been substituted for books and mimeographed outlines; teacher demonstrations have replaced individual laboratory practices.

Decrease in Teachers.—Salary decreases, compulsory ''voluntary'' contributions from teachers to the school treasury, and the uncertainty of tenure have undermined teacher morale to a less degree than might have been expected, to be sure, but nevertheless very seriously. The number of teachers in preparation for secondary school positions has decreased materially, partly as a result of limitations on numbers admitted, but more because of a lack of faith among high school graduates that the present surplus of certificated unemployed high school teachers can be absorbed in the near future. The enrolments of teachers in service in professional courses have also decreased due partly to restricted finances doubtless, but largely to the closing of doors to professional advancement through the abolition of administrative and supervisory positions in many city and state school systems.

FINANCES

Costs.—The average cost per pupil per day for public school education increased from 38.9 cents in 1920 to 62.8 cents in 1930; in the past three years it has decreased to 48.7 cents. Aside from the favorable salary status of teachers prior to 1931, much of the increase from 1920 to 1930 was due, first, to increased capital outlay, and, second, to the increases in percentages of pupils enrolled in high school as compared with those in elementary schools, since high school education is much more expensive than that of the lower grades. Moreover, the newer high school opportunities in fine and applied arts, in recreation, and in guidance have never been enthusiastically accepted by the financial groups that have controlled American institutions. During the past two years, therefore, these groups have in some cities compelled debtor boards of education to eliminate or decrease drastically high school expenses, in order that provisions for interest and retirement of bonds should be protected.

Hostility to Banking and Business Influences. — Professional journals and the programs and pronouncements of public school teachers associations have reflected the militant protest against this ''fascism'' of bankers; everywhere aggressive liberals are the spokesmen for educational groups. American public schools, which have for so long a time accepted servilely the support and control of the financial élite, seem about to break away from them, to make common cause with those groups in American life that hope to make permanent much of the national program now known as ''emergency'' or recovery legislation and administration. The community influences that are supporting the liberalization of the secondary schools are also affecting the state legislatures. While most strictly school legislation during the past year has been the authorization of suspension of mandatory salary laws and the like, there have been some favorable acts, and many proposed adverse laws and acts were defeated by the rallying of progressive groups in opposition to them.

COLLEGE ADMISSION

Changing Practices.—During the year some progress has been made in reducing what many believe to be the chief obstacle to secondary school curriculum and administrative reforms. Amherst, Cornell and Dartmouth have announced important changes in admittance practices. Dartmouth, indeed, purposes to select the entering class of 1934 entirely on the personal qualities of candidates without regard to studies taken or marks earned.

Cooperative Experimentation.—Even more significant is the progress made in high school experimentation under the leadership of the Commission on the Relation of Secondary School and College of the Progressive Education Association with the coöperation of admissions officers of many colleges including such very conservative ones as Wellesley and Bryn Mawr. Careful records of pupil traits and achievements are kept by the coöperating schools, and various attempts are made to correlate or integrate subjects and to provide cultural opportunities in non-academic fields for college admission candidates during their high school careers on the assurance that they will be accepted for admission by the colleges provided their records are otherwise acceptable, regardless of the curricula followed.

Testing Programs.—In the improvement of records of objective data, the use of intelligence, achievement, diagnostic and prognostic tests has had an important place. In addition to state coöperative testing services, there have been six national testing programs recognized by the Federal Office of Education. The extended use of the Scholastic Aptitude Test by the College Entrance Examination Board as a supplement to or a replacement of subject examinations holds encouragement for all who are interested in curriculum reform.

INFLUENCE OF SPECIAL COMMITTEES AND COMMISSIONS

Research Committee on Social Trends.—In addition to the Committee just mentioned, other groups have been at work during the current year, which bid fair to influence secondary educational practices in vital ways. Not all of them have formally represented educational bodies: some have already published their reports; others are just setting out in their work. Most important is the Report of the Research Committee on Social Trends, appointed by President Hoover in 1930, the report of which was made public in January, 1933. Shortly before this, there had been made public the recommendations for the gradual socialization of medical service by the Committee on the Cost of Medical Care. Both of these studies are of great importance in furnishing a factual and considered background for changes which must take place in secondary education.

National Survey of Secondary Education.—During the year many of the reports of the National Survey of Secondary Education have appeared. Reference has already been made to Koos's summary of several of these studies that refer to the curriculum. The constructive measures growing out of these studies of status and trends are being accelerated through regional conferences encouraged by the Federal Office of Education and sponsored by various organizations concerned with secondary education in all parts of the country.

Progressive Education Association.—The report of the Committee of the Progressive Education Association on Social and Economic Problems, entitled "A Call to the Teachers of the Nation" has been published and has received widespread and favorable comment.

American Historical Association Commission.—Three or more volumes of the reports of the American Historical Association Commission on the Social Studies have been published. Forthcoming volumes are expected to furnish a challenge for telic planning of the program of this potentially most important field.

Work of Other Bodies.—The Committee of the Department of Secondary Education of the National Education Association on Objectives in Secondary Education has held its first meeting under the chairmanship of Prof. T. H. Briggs; the Committee on Social-Economic Goals of America of which Dr. Fred J. Kelly is chairman is preparing a reformulation of a philosophy of secondary education; the Committee of the Progressive Education Association on Curriculum Research in Secondary Education under the advisory leadership of Dr. V. T. Thayer is undertaking a carefully considered experimental program; and the committee on the responsibility of the Secondary School to the Student and to the Social Order under the chairmanship of Dr. Jesse H. Newlon has launched upon its program.

The Outlook.—It will be seen from the foregoing paragraphs that while secondary education practices are temporarily quiescent when not actually retrogressing, the school is poised ready, as soon as present conditions of transition make progress possible, to enter upon a thoroughgoing revolution from that of a keeper and transmitter of an academic culture to that of a propulsive instrumentality for achieving a better cultural and personal life for every youth and adult.

COLLEGIATE EDUCATION

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FINANCIAL SITUATION

Unbalanced Budgets. — As was the case in 1931 and 1932, the dominant theme of any review of higher education for the year 1933 must be financial. The colleges and universities have been pre-occupied with measures taken to restrict expenditures or to increase income; institutional thinking has, during the year, failed to formulate an educational "new deal" in terms more philosophically sound than those usually associated with the meeting of immediate emergencies. During the academic year 1932-1933 more than half of the colleges and universities of the United States were unable to balance their budgets for income and expenditures. That this unsatisfactory financial condition was not even more general has been due in large part to severe measures taken almost everywhere to reduce expenditures for staff personnel. Both the number of employees and the amount of individual salaries have been reduced.

Staff Reductions.—Approximately 4,200 faculty members and over 4,500 administrative, maintenance and other workers in the institutions were struck from the payrolls during the period from the fall of 1930 to the spring of 1933. With the opening of the academic year in the autumn of 1933 this method of reducing expenditures seems to have been applied with a severity far in excess of that experience during the earlier years of the depression. Although the figures available are, as yet, incomplete and somewhat unreliable, studies indicate that the higher institutions opened in the fall of 1933 with approximately 6,000 fewer employees of all classes than were on the rolls at the beginning of the calendar year.

Salary Cuts.—Dismissals, failures to fill positions made vacant by death and resignation, and compulsory retirement of older faculty members to the emeritus status, by no means tell the whole story of the effect of financial distress upon the staffs of the higher institutions. Salary reductions have again brought the compensation of faculty members in many institutions almost to the level of the wages of common labor. At a recent conference of college registrars and business officers a representative of the Civil Works Administration described the formation of adult and unemployed classes for which teachers are supplied by means of Federal funds at rates approximately the same as those paid to skilled and semi-skilled labor employed upon relief projects. At that time teachers of these classes might expect to receive $60 per month. The point was immediately made by the college officials present that this meant that it would be advantageous for many of the faculty members in the smaller colleges to secure their dismissals and seek employment under the C.W.A. Salaries actually received were less than the relief pay. Although rates of pay for trained workers under C.W.A. have since been adjusted upward, this merely adds further emphasis to the salary disadvantages of many college faculty members.

The fact that the colleges and universities are exempt from NRA code provisions makes it possible for the institutions to pay their employees less than the minimum wage established for workers protected by codes. In many instances this is being done since the funds of the non-profit making institutions of higher education leave them no choice in the matter. In a few of the larger private institutions, notably the University of Chicago, economies and high tuition fees have enabled the professional group to continue upon old salary scales, but in the state institutions and in many of the smaller private ones, salary conditions have in many instances become almost unbearable. Reductions in salary of as much as 40 per cent are not uncommon and in a number of private colleges reductions are as large as 70 per cent. These percentages refer to salary scales; the inability of some institutions to meet current salary obligations has, in many instances, placed them heavily in the debt of their faculty members and still further reduced the amount available to the staffs to meet their current expenses. When actual want has not resulted it has still been necessary for many faculty members to borrow on insurance or even surrender insurance protection altogether.

DUBIOUS OUTLOOK FOR SUPPORT OF COLLEGES

There are few indications that the colleges and universities have as yet reached the crest of their difficulties. It appears probable that 1934 will witness the closing of more institutions and more serious financial difficulties on the part of the institutions that survive, than has been the case during the past year. Even though business should recover somewhat, it is improbable that private profits, which provide so large a part of the support of higher education, will increase to the point where income from endowment investments, gifts and taxes for the colleges and universities will enable them to wipe out deficits and at the same time restore their academic operations to anywhere near the old level of expenditures. It seems generally agreed that in the future investments will fail to return the large profits that they have in the past; even though dividends should be restored on the greater part of institutional endowments it is unduly optimistic to hope that they will be restored to old levels. For the same reason it is unlikely that private wealth and private business profits will, during the next few years, provide individuals with the funds for that type of "conspicuous expenditure" to which gifts to higher institutions belong. Anyone at all familiar with the financial condition of our political units must regard pessimistically expectations that they will come very effectively to the rescue of the higher institutions in the immediate future. The enormously increased debt burden that must be borne by the political units will forbid restoration of old appropriation levels and it is entirely probable that provision for state and municipally supported institutions will be curtailed even further.

Distressing as has been the condition of the higher institutions, the disruption of our basic elementary and secondary school system has been even more disastrous. Practically every family in the United States has some immediate contact with our public schools and very properly the public and the governmental units are much more insistent that this fundamental area of education be restored to effectiveness than they are that higher education be relieved. Higher education itself is dependent upon these schools and can look for no healthful restoration until they are once more developed upon a sound financial and educational basis. New tax money available for education during the next year will undoubtedly be devoted in large part to the lower schools. The events of 1933 point to the probability that efforts will be made to undermine the whole principle of public support for higher education.

LOSS IN ATTENDANCE AND STUDENT FEES

All higher institutions, both public and private, depend to a considerable extent upon student fees as a source of operating funds. At the end of the academic year 1932-1933 there were approximately 140,000 fewer students in the colleges and universities of the United States than in 1930. From incomplete reports and estimates it seems that somewhere between 60,000 and 100,000 students who were enrolled in 1932-1933 and would have normally returned to college and students who completed high school in the same year and would in normal times have gone on to college, failed to enroll in the colleges and universities in the fall of 1933. Losses of from 20 to 25 per cent in the attendance of graduate students at the opening of the current school year are by no means unusual among the higher institutions. With tuition and other student fees ranging from $60 to $600 a year, these losses of students mean a very considerable reduction in funds available for salaries and other educational purposes.

The prospects for increased attendance is remote. Family funds set aside for education have been depleted. Even though unemployment may decrease materially, farm profits once more become realities, and business revives, many college-going families will be unable to pay the expense of college education for their children from current income. Further the knowledge is becoming rather widespread that many of the professions, most notably teaching, engineering and law, are overcrowded and the old slogan that college attendance pays cash dividends is being regarded with increasing skepticism by prospective students. The spectacle of men and women who have earned their Doctor of Philosophy degrees, scrambling for employment under the C.W.A. or under other relief measures at $60 a month, does not tend to encourage young people to believe in the old dollar measure of the values of higher education. The institutions are now reaping some of the results of placing their recruiting upon this sordid basis rather than upon the basis of the other profits and satisfactions that education affords. The accumulation of an excess of profesional workers that is resulting from the graduation of students who have held on during the last three years makes it probable that this reason for reduced enrollments will be intensified rather than minimized in the immediate future.

All these conditions affect adversely the student source which the colleges and the universities have used persistently during the past ten years to secure increased funds for current expenses. At a time of declining attendance that arises from the financial inability of students to meet college costs, it is practically impossible for the institutions to increase fees. Most instances of institutional action with reference to fees during the year have been directed, therefore, to measures intended to keep the total receipts from this source as nearly as possible up to normal. In other words fee action is intended to stem the subsiding tide of attendance. Fees have, therefore, been reduced in many instances and a variety of devices, such as deferred payment of fees and adjusting fees to the resources of individual students, have been adopted.

Rollins College in Florida is an exception to the general rule. It is attempting to solve its financial problem by substituting a general fee covering all costs of board, room, and instruction for the old forms of student fees. This general fee is intended to make the student pay the full cost of his education and is fixed at $1,350 a year with provision for scholarships to care for the difference between what certain individual students can afford to pay and the total charge. These scholarship provisions apply especially to students in attendance before the new system went into effect. All new students will be expected to pay the $1,350 a year. It is to be regretted that the action of the American Association of University Professors, in striking Rollins College off its approved list because of autocratic methods allegedly used by the president in dealing with the faculty, came at a time when such an extraneous influence will affect the reputation of the institution and interfere somewhat in determining the effect of the new fee plan upon Rollins' attendance.

PROBLEMS OF EXTENSION AND ADULT EDUCATION

Financial inability to take up resident work in college, a shorter working day quite generally adopted, and continued unemployment have united to develop a demand for extension and adult education that the higher institutions are by no means prepared to meet. In spite of half-hearted and sporadic activity of the colleges and universities during the past year to develop emergency and unemployment schools, to open regular classes to the unemployed, to utilize the radio for instruction and in other ways to increase educational extension opportunities, it is at this point that the higher institutions have failed most lamentably in their thinking about their educational function. Much of the effort to provide adult education put forth by the colleges and universities during the year has been based upon the old dollar and cents conception of the functions of higher education; to increase vocational skills and abilities that are not now and may never be needed has been the objective of much of this work. When this has not been true the best expression of the philosophy of such work that the institutions have formulated is in terms of "education for leisure" which carries with it the implication of time killing and "busy work." No higher institution seems to have recognized adequately the obligation to shape its adult education program primarily for the purposes of participation in social reconstruction and management. No institution seems to have faced squarely the reorganization of its procedures and residence work in order to make effective the promotion of learning as a life-time process in which both residence work and extension activities are coördinated and in which the distinctions between these two categories are largely wiped out. The higher institutions have during the year failed both in their recognition of the importance of a vital program of adult education and also in the formulation of an adequate educational philosophy to provide the basis for the adult education activities that they have undertaken.

They have thus missed an opportunity to establish their claim for funds to carry on a type of higher education which is urgently needed and which has an appeal that would make refusal of support much more difficult than is refusal of financial aid for the traditional forms of higher education.

STUDENT EMPLOYMENT

Many institutions have displayed increased vigor in the management of their student employment services, also in order to enable students to continue in college and to meet their bills. Systematic and thorough canvasses of local residents and business men have been made to discover part-time jobs that students may carry without interfering too seriously with their college work. Quite generally this increased concern about providing part-time employment for students has resulted in considerable modification of rules and requirements in regard to the load of study that students have been required to carry in order to maintain regular status, and even regulations in regard to class attendance have been liberalized both with respect to all students and with respect to individual students whose jobs required attention at some class hours.

FINANCIAL AID FOR STUDENTS

One type of effort to keep students in college that is especially difficult to measure, but that is of considerable importance, is the financial assistance provided to individual students from the personal funds of faculty members. Since this assistance is usually arranged in confidence between the professor and the student and can be discovered only accidentally, the extent of such aid cannot be measured, but enough evidence exists to show that it is large. Since such aid is usually given because of the excellence of scholarship in the professor's own field of interest it is a remarkably effective selective device. The resemblance in principle that this method of aid has to the subsidizing of athletic excellence is superficial since it is devoted to the promotion of the major scholarly purposes of the institutions rather than to the exaggeration of an incidental.

RECRUITING PROGRAMS

The most important effect of institutional desire to maintain enrollment is an extraordinary emphasis upon recruiting programs. Some of these programs have become almost as scandalous as were the old competitions for high school athletes, not because of the similarity of purpose, but because of the type of methods used. It is interesting to note in this connection the action taken by the North Central Association of Colleges and Secondary Schools at its meeting in 1933. The form of statement that the member colleges should be permitted to make in their catalogues and recruiting literature in regard to their membership in the association was prescribed in order to prevent exaggerated and misleading claims with reference to the significance of such membership.

CONCLUSIONS

General reviews of conditions in the United States that have appeared toward the end of the year 1933, have been characterized by a conservative optimism which appears to be justified. In the field of higher education a similarly encouraging picture of the year would be misleading. While many of the institutions have showed a degree of courage and determination in carrying on and in making emergency adjustments, the year has been marked by a gradual intensification of financial and educational difficulties which will probably continue during the next three years unless an almost miraculous development of public sentiment and available funds should check present tendencies. The major success of the colleges and universities has been displayed in the vigor and ingenuity they have shown in devising stop-gap measures and in avoiding complete suspension. Their major failure results from apparent unwillingness to devise a philosophy and method of organization which will meet new conditions even at the expense of conventional and traditionally sanctified content and method.

EDUCATION FOR THE PROFESSIONS

By Alonzo F. Myers

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In this article it has been possible to present only a brief report of some of the significant developments in a few of the professions in the year 1933[*].

LEGAL EDUCATION

National Associations. — Coöperation was the dominant note of association activities during the year. At the annual meeting of the Association of American Law Schools, held in Chicago, December, 1932, two main topics were discussed: the respective parts that may be played by law schools, by bar associations, and by bar examiners in raising the standards of the legal profession, and the availability, for teaching purposes, of American Law Institute Restatements (themselves a coöperative product). At the annual meeting of the American Bar Association, held in Grand Rapids the following August, legal education and admission to the bar was selected as one of the four fields in which united action by all bar associations is to be urged, under the leadership of the national organization. The National Conference of Bar Examiners, in its monthly periodical, *The Bar Examiner,* and at its annual meeting held in conjunction with that of the American Bar Association, has established itself as a valuable clearing house of information, not only among the previously disunited state boards, but between the boards and the law schools. During the second year of its existence, it has published in systematic form statistics of bar admission results, a directory of bar examiners, and rules governing the admission of attorneys from other states (an important topic not covered by the Carnegie Foundation's *Annual Review of Legal Education*). Much material has also been published bearing upon particular matters involved in the technique of bar admissions, notably the type of questions that should be asked in bar examinations, the proper treatment of repeaters, and the best means for ascertaining and promoting sound ethical standards.

Bar Admission Requirements. — During the past year, 21 states (compared with 23, by revised figures, the year before) made changes in their rules or laws affecting admission to the bar. Among the more important developments were increased requirements of general education in Washington, Oregon and Nebraska, and changes in the provisions affecting preliminary registration of law students in Nebraska, Kansas, Connecticut and Pennsylvania. New York has abandoned its obligatory office clerkship in the case of college graduates, and Tennessee has postponed the date at which it will require two years of law study in place of one. Georgia has abolished the privilege enjoyed by five local law schools of having their graduates exempted from the bar examination, but in Wisconsin the same privilege, long enjoyed by the State University, has now been extended to the other local law school. Washington, Arizona and North Carolina have joined the increasing group of western and southern states in which responsibility for professional standards of education and conduct has been placed, under certain safeguards, upon the profession itself. The total number of jurisdictions that, in addition to a bar examination, require all applicants to have secured a specific amount of general education, and following this, to study law during a specified number of years, is now seventeen out of a total of 49 (48 states and the District of Columbia). Of these seventeen, fourteen set a standard of general education as high as the two years of college recommended by the American Bar Association. Five additional states require something in the nature of two years of college, but not necessarily, in the case of all applicants, before the beginning of the prescribed period of law study.

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Law School Statistics.—In 1932-33 the degree-conferring law schools in the United States numbered 185, of which 84 were full-time, 76 part-time and 25 of the ''mixed'' type, maintaining separate full-time and part-time divisions. As compared with the year before, the number of full-time schools was unchanged; there was a net increase of one part-time school, and of two ''mixed'' schools. The autumn attendance was as follows: Full-time (complete), 14,983, being 172 in excess of the figures (revised) for the preceding year; part-time (5 schools not reporting), 12,936, being 899 less than the year before (3 schools not reporting); ''mixed'' type (complete), 10,270, being 501 less than the year before (2 schools not reporting); total for all schools, 38,189, being a net loss of 1,228. Of the students attending schools of the ''mixed'' type, 4,121 were in the full-time, and 6,149 were in the part-time divisions. At the close of the academic year, 68 of the full-time schools (81 per cent) were members of the Association of American Law Schools, and these, with 5 others (making 87 per cent) had been approved by the Council on Legal Education as complying with the standards of the American Bar Association. No exclusively part-time school had qualified under the standards of either Association, but 7 of the ''mixed'' type were members of the Association of American Law Schools, and these, with 2 others, had been approved by the Council on Legal Education. Schools approved by the Council contained 92 per cent of the exclusively full-time attendance, 39 per cent of the attendance at schools of the ''mixed'' type, and 46 per cent of the total attendance at all law schools.

MEDICAL EDUCATION

Educational Policies. — The Committee on Educational Policies of the Association of American Medical Colleges submitted the following recommendations to the Association at the annual meeting held in Minneapolis and Rochester, Minn., Oct. 30-31 and Nov. 1, 1933. These recommendations may be considered to represent the present best thought and practice in medical education:

1. That medical education should train the student in the cultivation of health, in the prevention of disease and in the practice of medicine, both individualistic and organized.

2. That the main purpose of undergraduate medical courses is to train ''the basic doctor'' by a basic medical curriculum; that is to say, the practitioner, capable of thinking for himself, endowed with initiative and resourcefulness, suited to the needs of modern society and the new forms of medical practice and ready to be ripened by experience and life after he graduates.

3. That, in the basic curriculum consideration should be given to replacing the quantity of the subjects taught by the quality of the knowledge to be acquired, the over-extensiveness by thoroughness. The tendency to turn out the doctor who is a walking encyclopedia of medical science should be avoided.

4. That scientific instruction and clinical experience, theoretical teaching and practical application, university laboratories and hospital services, academic freedom and apprenticeship under guidance should be made complementary to one another in the institution, the curriculum and the methods of instruction.

5. That it is essential that there should be a liaison and exchange between the pre-clinical scientific period and the clinical period of the course, the teaching of the fundamental sciences being continued into the clinical part of the course, and of the broad

clinical principles being introduced into the pre-clinical period.

6. That the instruction in the pre-clinical sciences should be governed by the following principles:

(a) As the purpose of medicine is the promotion and cultivation of the health of people in addition to the treatment of sick patients, a thorough knowledge of the normal living, growing and functioning human being is essential.

(b) The basic course in anatomy should provide the student with a sound knowledge of the structure of the normal human being in a state of health. Much of the detailed knowledge which is essential for special fields of practice but not for a basic course, should be omitted. A greater coordination with physiology and the functional activity of structures as well as with the clinical subjects should be introduced.

(c) The increasing importance of physiology as a fundamental subject of medical education, as an experimental science, as a key to clinical training, as a means towards improving early diagnosis and treatment, and as a knowledge of the body functions in the normal healthy man, should be realized.

7. That clinical instruction should remain as the center of gravity of the whole medical course where a synthesis of all theoretical, scientific and clinical principles should be effectively carried out.

8. That clinical instruction in each year should include the presentation of the subject from the standpoint of its relation to hygiene, to social service, to public health (including the care of indigents), to insurance (accident and life) and to industrial and community practice.

9. Specialization:

(a) That the training of the "basic doctor" should include only the main fundamental principles of the specialties needed by the general practitioner.

(b) That the training for the specialties should be provided for by the organization of graduate courses of instruction.

(c) That the determination of the qualifications of specialists to practise in a special field should be based on the fulfillment of certain minimum educational requirements and the passing of a specialist examination.

(d) That the possession of the necessary qualification be recognized by a non-compulsory certificate or diploma and by the publication of a register or list of those holding such specialist certificates.

(e) That the supervision of the qualification and certification of specialists be placed upon a board or council, consisting of representatives of the medical practitioners, the medical associations, the medical licensing bodies and the universities.

Relation of Number of Medical Graduates to the Public Need.— Leaders in medical education are giving increased attention to the problems connected with maintaining a reasonable balance between the supply of physicians and the needs of medical care. They recognize that if there are too few physicians medical needs can not be adequately met and that the cost to the individual will be elevated. Furthermore, in the event of an inadequate number of doctors there would probably be a lowering of standards in order to overcome the insufficiency. They recognize also that if there are too many physicians the quality of medical care is likely to suffer from economic pressure, and that bad practices are likely to arise. There is the further fact that when conditions within the profession become unsatisfactory there is a definite influence on the quality and type of students who desire to study medicine.

It is exceedingly difficult to determine the number of physicians needed to provide an adequate medical service for the country. It is recognized that many persons are now unable to secure adequate medical care because the necessary facilities are not available in their community; the individuals are not able to pay for the services required; the physician is not fully abreast of current knowledge and skill in certain phases of diagnosis and treatment, and other factors. It seems quite evident that there is an excess number of medical personnel in the country as a whole. It probably is not true that there is an adequate number of properly qualified practitioners. The problem then is not only one of the number of physicians in relation to the population, but also of proper integration and organization of their efforts, of unsatisfactory means of financing medical services, both for the physician and the patient, and of organizing continuation education of physicians which will keep every doctor familiar with modern methods in the diagnosis, care and treatment of patients.

Experience in certain instances has shown that it is possible to provide a reasonably adequate medical service on the basis of one active physician to 1,000 to 1,200 persons, depending upon the area, the population group, the method of organization, and other factors. If we could accept this standard as being adequate for the country it would indicate a need for about 120,000 physicians. We actually have 156,000 physicians. Of this number, however, about 20,000 are over sixty-five years of age. At the present time the approved medical schools of the country are graduating about 4,900 medical students each year. In addition, more than 200 are licensed annually to practice medicine without having graduated from an approved medical school, and about 250 are added each year to the medical profession from schools outside the United States. This makes a total of about 5,400 added annually to the medical profession in this country. During the last decade the average number of deaths of physicians yearly has been about 3,100. It seems clear that the supply of physicians is considerably in excess of the demand and that a readjustment of the supply should be made. This may be accomplished through a reduction in the number of medical schools, a reduction in the enrollments in individual schools, or by transferring the functions of some of the present medical schools into graduate schools devoting their attention to the training of specialists and to the continuation education of physicians in service.

Aptitude Tests for Medical Students.—In the school year 1929-193 the medical aptitude tests were given to approximately 5,000 freshmen medical students. They have been used as an experimental group in studying the selective value of the aptitude tests. Since those students who completed the medical curriculum graduated in June, 1933, it is now possible to report on the predictive value of the tests to the point of completion of the medical course. Of those who stood in the highest tenth on the medical aptitude tests no man has failed and the whole group shows an average medical school grade for four years of 86. In the lowest tenth 54 per cent have failed and the group shows a medical school average of only 71.4.

Another valuable study has been completed of 1,000 medical students who took the medical aptitude tests five years ago when they were freshmen and for whom interneship records have now been obtained. Each student was rated on his interne work by the superintendent or physician of the hospital in charge of internes. The ratings were made on a scale of 1 to 5, "1" being a high rating (comes up to the best the hospital has had) and "5" a low rating (is among the poorest internes the hospital has had) Of those who scored in the highest tenth on the aptitude test 41 per cent were given a rating of "1" and none were rated "4" or "5". Of those who graduated who were in the lowest tenth on the aptitude tests (remember that more than fifty per cent did not even reach the interneship) 37 per cent were rated "4" or "5" and only 10 per cent were rated "1".

Obviously, the medical aptitude tests offer great possibilities for the scientific selection of medical students. The committee is now making a study of individual cases of discrepancy between the aptitude test scores and medical school performance. Among the items studied are age, financial or family worries, necessity for earning part or all of expenses, study habits and personality factors.

ENGINEERING EDUCATION

Anniversary Meeting of the Society for the Promotion of Engineering Education.—The year 1933 marks the fortieth anniversary of the founding of the Society for the Promotion of Engineering Education. The anniversary meeting was held at the Stevens Hotel in Chicago, June 26-30, 1933. At this meeting Certificates of Honor were presented to 21 charter members of the Society. During the forty years of its existence the Society for the Promotion of Engineering Education has made important contributions in the improvement of curricula and instruction in engineering colleges. The Society has a membership of 2,625 individual members and 120 institutional members.

Growth of Engineering Education.—In 1893 there were about 100 engineering schools in the United States, three-fourths of which were not yet twenty years old. The number of engineering students in 1893 was probably between 12,000 and 13,000. Numerically, enrollments have increased five-fold, while the number of institutions has increased about 50 per cent. Of graduate students there were virtually none in 1893. Now there are about 4,000. Almost as many advanced degrees were conferred in 1933 as there were first degrees in 1893. Engineering has become the largest division of higher education, excepting only liberal arts and teacher training.

Current Problems in Engineering Education.—Among the problems being encountered in engineering education are the following:

1. Most of the Southern institutions, and some in other sections, will be compelled next year to admit high school graduates who have had in the last year of their high school work only seven or eight months' schooling. This will undoubtedly result in an increased need for a qualifying examination which Florida has already adopted for those seeking admittance.

2. Fluctuations in enrollment give a confusing and varied picture. Freshmen classes have decreased from zero to fifty per cent in some institutions, while in a few institutions they have increased. Total enrollments in engineering colleges are estimated to be about ten per cent lower than last year.

3. There has been some changing of students from engineering to business administration as a result of changing objectives under present economic conditions. Several of the engineering colleges are adding courses in business, economics and sociology.

4. Throughout the country engineering colleges are operating with greatly reduced budgets. This has resulted in the elimination of capital investments, in drastic reduction of appropriations for maintenance and supplies, in increased teaching loads and in salary reductions. Research programs have been laboring under financial retrenchments and yet simultaneously are needed and stimulated by increased graduate enrollments.

Summer School for Engineering Teachers.—The 1933 Summer School for Engineering Teachers sponsored by the Society for the Promotion of Engineering Education was devoted to the teaching of mining and metallurgical engineering and other subjects in the general field of education for the mineral industries. The session was held at the University of Wisconsin from July 5 to 25 inclusive. The session was made possible through the generous financial support and coöperation of the Carnegie Corporation of New York, Engineering Foundation, and the University of Wisconsin.

EDUCATION FOR THE MINISTRY

The Theological Seminaries.—Theological seminaries have had to operate during 1933 with reduced budgets. This year 1933 has, therefore, not been a year of expansion. Probably the chief gain that has been made is in the direction of a more careful selection of candidates for admission. This has been necessary because of a decline in the number of opportunities for placement of graduates. Churches which formerly employed assistants are now unable to do so. Many educational institutions which sought men for their departments of

Bible or religious education are on reduced budgets and have actually let men and women go from their staffs. Y.M.C.A.'s and similar institutions are in even worse plight.

The Education of American Ministers. — The comprehensive three-year study of theological education sponsored jointly by the Conference of Theological Seminaries and the Institute of Social and Religious Research is now in the press and will be ready for publication early in January. This study was directed by Dr. Mark A. May, Director of the Institute of Human Relations, Yale University; and Dr. William Adams Brown of the Union Theological Seminary, was theological consultant. In its field this is undoubtedly the most important book published in many years, inviting comparison with Flexner's epoch-making study in the field of medical education.

The general title of the study will be *The Education of American Ministers,* and it will be published in four volumes, as follows: Vol. I, *Ministerial Education in America—Summary and Interpretation* by William Adams Brown; Vol. II, *The Profession of the Ministry—Its Status and Problems* by Mark A. May, in collaboration with William Adams Brown, Frank K. Shuttleworth, Jesse A. Jacobs, Charlotte V. Feeney; Vol. III, *The Institutions That Train Ministers* by Mark A. May, in collaboration with William Adams Brown, Charlotte V. Feeney, R. B. Montgomery, Frank K. Shuttleworth; Vol. IV, *Appendices* by Mark A. May and Frank K. Shuttleworth. Thus it will be seen that Dr. Brown's volume (I) is an interpretative summary of outstanding results, while Dr. May's two volumes (II and III) present the factual data of the study, the former dealing with the minister in the field and the problems that he meets, and the latter with his preparation in the seminary. The scope of these two volumes may be briefly indicated by the titles of the "Parts" into which they are divided, thus: Volume II—"The Minister and His Education," "The Minister and His Denomination," "The Minister and His Works," "The Relation of the Minister's Training to His Success." Volume III—"The Seminary as a Professional School," "Seminary Teachers and Teaching Methods," "The Student Body," "The Seminary as a Center of Corporate Religious Life," "The Relation of the Seminary to Its Larger Constituency."

Catholic Seminaries. — There are 93 major Catholic seminaries in the United States. These are distributed among the various states as follows: Alabama 1; Arkansas 2; California 4; Colorado 1; Connecticut 1; District of Columbia 9; Florida 1; Illinois 7; Indiana 3; Iowa 1; Kansas 3; Louisiana 2; Maryland 4; Massachusetts 4; Michigan 2; Minnesota 2; Mississippi 1; Missouri 3; Nebraska 2; New Jersey 3; New York 12; North Carolina 1; Ohio 6; Oregon 1; Pennsylvania 7; Texas 3; Washington 1; and Wisconsin 6.

Control.—Seminaries may be divided according to the type of control into two classes, the secular and the religious. The former are destined for the training of the secular or diocesan clergy; the latter for the training of the clergy of the various religious orders. Secular seminaries are usually conducted by diocesan priests, under the direction of the bishop, although several of them are in charge of religious congregations. The religious seminaries are conducted by members of the religious bodies to which such institutions belong. Of the 93 major seminaries in the United States in 1932, 16 are conducted by diocesan clergy, 1 by diocesan clergy and a religious order and 76 by religious orders. Thirty religious congregations and societies are represented in those seminaries conducted by religious orders. Sixty-one of these seminaries were given over exclusively to the training of candidates of the various religious orders, 23 to the training of secular priests and 9 to the training of students for both fields of religious work.

The 32 seminaries that prepare aspirants for the secular priesthood are located in 28 of the 105 arch-dioceses and dioceses of the United States. Dioceses that do not have their own seminaries send their candidates to seminaries in various parts of the country. St. Mary's Seminary, Baltimore, for example, the largest and oldest of the diocesan seminaries, receives students from a number of dioceses.

St. Mary's Seminary is conducted by the Sulpicians, a society of secular priests founded especially for training the clergy. The Catholic University of America, which also enrolls divinity students from all parts of the United States, has entrusted to the Sulpician Fathers, under the general supervision of the Rector and Vice-Rector, the spiritual direction and care of the theological students.

The Pontifical College Josephinum, Worthington, Ohio, is not diocesan. It is national and trains priests for needy dioceses without expense to the diocese. It also specializes in German for the benefit of any diocese requiring priests who can speak German.

Support.—With the exception of the St. Paul Seminar, St. Paul, Minn., which was endowed by Mr. and Mrs. James J. Hill, the seminaries are dependent upon the diocesan collections for their support. Here and there purses have been established and special funds secured, but, in general, the expenses are defrayed from the yearly offerings of the faithful. Students from other dioceses who attend a diocesan seminary are supported by their respective bishops. Religious seminaries are, of course, supported by the respective religious orders.

Courses.—The length of the curriculum of the diocesan seminary was definitely fixed by the Third Plenary Council of Baltimore: "In all seminaries the course of study shall embrace not fewer than six years, two of which shall be devoted to the study of philosophy and four to that of theology."

Teachers. — In the 93 seminaries the instruction staffs included 341 religious and 211 secular clergy in the department of theology. Fifteen lay teachers were also included in this department. The department of philosophy included 287 religious order priests, 118 secular priests and 27 lay teachers. Excluding duplicates the total number of instructors in the major seminaries in 1932 was as follows: Religious order clergy 580, secular clergy 267 and lay teachers 36. The grand total of 883 instructors was practically the same as in 1930 when 886 instructors were reported. Seminary rectors and instructors take an active part in the annual meeting of the National Catholic Educational Association. The Seminary Department, one of the important divisions of the Association, holds separate sessions to discuss common problems and to consider questions affecting the relation of the seminaries to other Catholic educational institutions. At present 24 seminaries are represented in this Department. In addition several of the religious orders have national conferences which include discussions of seminary problems.

Students.—In 1932 the number of students enrolled in courses in theology was 4,928. Of this total 1,665 were students training for religious orders and 3,263 were students training for the secular clergy. A total of 2,891 students were enrolled in courses of philosophy. This total included 1,463 religious order students and 1,428 aspirants to the secular priesthood. Excluding duplicates the total number of students training for religious orders was 3,045 and for the secular clergy 4,682. The grand total of 7,727 students in 1932 was an increase of nearly 100 students over a total of 7,632 in 1930.

Graduates.—In 1932 the seminaries reported 1,358 graduates. The number of these graduates who received degrees was as follows: Bachelor of Arts 489; Bachelor of Science 1; Bachelor of Philosophy 11; Bachelor of Sacred Theology 89; Master of Arts 166; Master of Science 5; Licentiate of Philosophy 1; Licentiate of Sacred Theology 33; Doctor of Sacred Theology 2, or a total of 797 degrees conferred. Thirty-seven of the seminaries confer degrees directly or through affiliation with one of the Catholic universities. The number of graduates ordained as religious was

335 and as secular clergy 676. This gives a grand total of 1,011 ordinations in 1932. This is an increase over the total of 912 ordinations in 1930 when the previous survey was made.

EDUCATION FOR BUSINESS

Relation to NRA Developments.—In spite of the pleadings and warnings of certain leaders, the outstanding characteristic of business education in 1933 continued to be its complete lack of capacity and desire to meet the vital challenge of the changed national attitude toward economic life as manifested in the developments of the NRA and its allied organizations. While a certain amount of lip-service was rendered to the changes these profound currents in economic life would have upon the objectives of business education, actually the only recognition given to these movements was in the persistent and dogmatic reiteration of the value of the present line of subjects in meeting new conditions. While conventions took over the topic of the influence of our changing social and economic life upon business education, they made no effort to change the offerings, but merely continued to excuse the *status quo* in terms of slightly changed objectives rationalized to fit the same old program of studies.

Business Education in Secondary Schools.—The secondary schools still continued to limit their attempts at vocational business education to training for secretarial and recording jobs though the labor markets were already over-saturated with excellent unemployed workers. Training for salesmanship continued to be neglected. The splendid efforts to give a better form of training for general clerical positions through the development of courses in office practice met with meagre success because of the lack of funds available for equipment. Continuation schools continued to suffer severe losses in enrollment because of the release from employment of thousands of junior workers. The full-time secondary schools were greatly hampered in their work through the necessity of taking car of these many additional young peo ple in spite of the decrease in th corps of teachers.

Business Education for the Con sumer.—Business education for th consumer still was given in a hap hazard manner. There was much dup lication of effort and lack of efficien teaching in the social-business sub jects which are possibly the bes single group of courses through which such training might be given. In spit of the obvious lessons of the recon struction of our economic life no se quence of training in economic lif for the consumer developed. In con siderable measure the fault may b placed upon the leaders who pointe the way, but failed to provide the vehicles, courses of study and text books, without which no new body o subject matter can successfully be placed in American schools. For ex ample, while full recognition is given to the fact that bookkeeping is vocationally justified in only a very marginal manner, we still continued to teach the same subject matter as formerly. This fault cannot be placed upon the publishers of business textbooks who would have been glad to print texts which presented an interpretive study of bookkeeping so necessary for all intelligent consumers, if good manuscripts were offered to them.

Business Education in Colleges.—Collegiate instructors of business emphasized the need for increased social responsibility in business in their conventions. Some of this emphasis probably percolated into their classroom instruction. They also stressed the need for a more thorough foundation of theoretical economics as a basis for practical applications. The value and place of combination curricula received renewed attention.

Coordination of Effort.—While the creation of a national unity of secondary school teachers of business still failed to develop, sincere efforts were being made to achieve this highly desirable objective. The success of the rejuvenation of the Department of Business Education of the National Education Association and the work of the National Council of Business Education gave evidence of the determination of the leaders to achieve at least a national unity of organization. It also indicated that the effort to achieve a better program of business education both for the worker in business and the consumer of business services will not be dropped until success has been attained.

THE PROFESSIONAL EDUCATION OF TEACHERS

The National Survey of Teacher Training. — The three-year national survey of teacher training which was begun on July 1, 1930, by the U. S. Office of Education has been completed. The only volume of this comprehensive survey which has been printed and distributed to date is Volume I, which is an excellent annotated bibliography on the education of teachers. It is expected that other volumes of the survey will be ready for distribution in the near future.

Teacher Training Curricula. — In several of the states and in many cities the minimum scholastic requirement for elementary teachers has been increased to four years of post-secondary school instruction. For high school teachers the minimum requirement is rapidly being elevated to five years. With the longer curricula thus made possible in the institutions which prepare teachers, there is a strong tendency to provide a much broader and more comprehensive general education for the prospective teacher. The first and second years are devoted very largely, and in some instances exclusively, to general or junior college education. The practical or laboratory school aspects of the preparation of the teachers are receiving increased attention.

Over-supply of Teachers. — Estimates of the number of unemployed teachers in the United States are highly unreliable. It is known, however, that the number is very large, perhaps 200,000. This situation has been aggravated during the depression by the practice of many boards of education of reducing their staffs, sometimes by discharging teachers, and frequently by failing to fill vacancies. Also many former teachers have endeavored to return to teaching as a consequence of the effects of the depression. The effect of this tremendous over-supply of teachers, along with the necessity for reducing local public appropriations, has been a drastic reduction in teachers' salaries in most sections of the country. During the current school year many thousands of teachers are receiving salaries lower than the lowest wage approved under any of the NRA codes.

Teachers Colleges in the Depression. —During recent legislative sessions in the respective states efforts were made to close many of the state teachers colleges. To date, however, no state teachers colleges have been closed. Several municipal teachers colleges have been closed, however, and many state teachers colleges have had their appropriations reduced drastically. It is perfectly clear that too many teachers are being trained and that too many institutions are engaged in the task of training teachers. In addition to the state and municipal teachers colleges and the colleges of education in universities, hundreds of liberal arts colleges, many junior colleges and special schools, and several hundred high school training classes are engaged in training teachers. A proper balance between teacher demand and supply will not be restored until a fundamental and drastic reorganization of teacher training agencies is carried through.

XXVII. EDUCATION

VOCATIONAL EDUCATION*

By L. H. Dennis

Executive Secretary, American Vocational Association

INDUSTRIAL TRAINING PROGRAMS

Retraining. — The experiences of the past two years have demonstrated more clearly than ever before the necessity for, as well as the possibilities in, adequate vocational education. Industrial retraining programs have been set up in many industrial centers to assist thousands of workers to prepare themselves for new types of employment. These retraining programs are planned for those adults who find it necessary to secure other employment because of loss of employment or changing methods in industry.

Economy in Living.—Sharply reduced incomes have made it necessary for families to practice the strictest economy. Home-economics training programs have been set up to provide information dealing with economy in living. A study of diets, home nursing and remodeling of clothing have enabled many homes to stretch the family budget to meet the urgent needs of these difficult days.

Agriculture.—In rural areas teachers of vocational agriculture have been of invaluable assistance in explaining to the farmers the various agricultural programs inaugurated by the Federal Government. This program of education has enabled thousands of farmers to secure more of the benefits of the various national adjustment programs. The vocational leaders in agriculture have provided trained community leaders in the wheat, corn and hog adjustment programs as well as in the other emergency programs aimed at national recovery in rural America.

New Plans.—In spite of the necessity for the strictest economy in the operation of the public schools of the country, the vocational education program has suffered very little. In many sections of the country plans for the extension of vocational education are already under way. Many new vocational schools are now being built as a part of the National Civil Works Administration program.

DEVELOPMENTS IN INDUSTRIAL ARTS

Growth. — Industrial arts is the generally accepted term designating the educational experiences provided in various kinds of shop and mechanical drawing courses of the non-vocational type which are found throughout the country in intermediate and high schools. This phase of school work has had a phenomenal growth in the United States since its introduction in 1880, and is now generally accepted as an integral part of the program of education for modern life.

Effects of Tax-cutting Economies.—During 1933 this division of school work, along with all the other non-academic features of contemporary education, has been attacked in many places as being not essential, though perhaps desirable, and, therefore, for reasons of economy, should be eliminated. These attacks served to arouse a remarkably vigorous protest both from professional educators and laymen who are interested in making the schools more responsive to the needs of modern life. As a result, it is doubtful that any real losses have been sustained. In scattered communities where industrial arts was inadequately supported and the work not clearly of value, courses were discontinued, but available information from the country as a whole indicates that this phase of school work is much more solidly built into the educational structure of the nation than many had thought. It now appears that the attacks have but served to cut away the less sound parts and to make all the more valuable the offerings which were properly supported and well taught. The most spectacular loss was caused by the abolishing of all junior high schools in the City of Chicago, but many of the industrial-arts teachers who were dropped have already been retrained for work in the grade schools and reemployed. It now seems probable that a greatly enriched type of industrial arts work will eventually emerge in the Chicago schools as a result of this particular incident.

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* The author is indebted to Prof. Arthur B. Mays of the University of Illinois for developments in the industrial arts; to Miss Ruth Freeguard, State Supervisor, Home Economics Education, Lansing, Mich., for the section on home economics, and to John J. Lee, State Supervisor, Division of Rehabilitation, Department of Public Instruction, Lansing, Mich., for the review of the rehabilitation of disabled adults.

American Vocational Association Meeting.—During the sessions of the American Vocational Association, which met in Detroit in December, two notable meetings occurred concerning the progress of industrial-arts education. One of these was the meeting of the industrial-arts section at which the last of a series of six special reports of a committee on standards of attainment in industrial arts was heard. The work of this committee during the past six years has attracted nation-wide interest among those concerned with industrial education. The report at that meeting was a summary of a study covering several years work on the objectives of industrial arts together with specific recommendations for the realization of the objectives formulated. The other meeting was a panel discussion on industrial education participated in by college professors, city directors of industrial education, a school superintendent, an executive from a large industry, a representative of the industrial-education forces of Canada and a representative of the vocational-education division of the Federal Office of Education. Much of the discussion of the panel turned on the purposes, character, and significance of industrial arts, both as a phase of general education and as a foundation for vocational education. A large audience representing every section of the United States followed the debates with absorbed attention, and the influence of this meeting will doubtless be widely felt.

A. V. A. Committee on Tests.—The American Vocational Association committee on standards of attainment, referred to above, began a summarizing of its report of six years study. The final report will be submitted next year in book form. As this project draws to a close, another significant study dealing with objective tests in industrial arts has begun. A preliminary report of the committee on tests was made at the Detroit meeting, and it shows promise of another notable contribution to industrial-arts education by the industrial-arts section of the A. V. A.

Contributions of Mississippi Valley Conference.—One other outstanding event of the year affecting industrial-arts education was the twenty-fourth annual meeting of the Mississippi Valley Conference on the training of teachers of industrial arts. At this conference, the final stages of a project to publish a year book were entered. This book will be distributed in celebration of the twenty-fifth anniversary of the founding of the Conference, and the presentation of the preliminary draft stimulated great enthusiasm among the members, who this year were present from teacher-training institutions in thirteen states. A feature of this meeting of special interest was a report of a committee which has been at work for four years on an annotated bibliography of all the masters' and doctors' theses dealing with industrial arts and vocational industrial education since 1892. This report lists 800 such theses and gives a brief account of certain conclusions pertaining to the reporting of research projects in industrial education. It is a notable contribution of the year.

HOME ECONOMICS

Scope and Significance. — Home economics played no small part during 1933 in conspicuous activities for public good. Never before had home economists been called upon to serve in so many capacities to interpret and apply the resources of science, industry, art, and social relations toward the betterment of homes and of individuals in those homes. The Century of Progress Exposition presented a cross section of these services in numerous exhibits on food, clothing, housing, health, and family life even though the contributions were not usually indicated. Here also was evidence of the wide use of trained home economists in ever increasing line of business and industry.

Home Relief Work.—In January, Dr. Louise Stanley of the Bureau of Home Economics sent out a call to all the states to mobilize their forces in setting up plans to meet the economic and social emergencies facing the homes within their respective borders. Teachers, extension workers, business women and homemakers pooled suggestions and set up immediate and long-time plans to help homes and families very materially in working out satisfying adjustments to present conditions. This opportune appeal from the Bureau represented only one of the significant contributions of home economists in the various Federal offices. Activities for the relief of ''borderline'' families, as well as those on welfare relief gained momentum through the year. The opportunity offered in December for adult education and for emergency nursery schools under Work Relief in Education widened the scope of service for teachers of homemaking. The government's ''rural housing survey'' under home economists will include in its follow-up program suggestions for teaching materials for home economics classes to meet the needs of rural groups more effectively.

Activities and Plans.—A picture of what is being stressed these days in home economics may be obtained by noting the programs of professional organizations and the subjects in professional magazines and news letters. Among these organizations are the American Home Economics Association, the American Vocational Association, the state teachers' associations. The *Journal of Home Economics, Practical Home Economics,* the home economics news letters from the various states and the professional bulletins show the definite trend in stressing social and economic aspects and in applying science and art to home situations in very practical ways. All the activities referred to have had a direct and immediate influence on the programs of home-economics education in the schools. In spite of the publicity urging elimination of home economics as a frill, the departments have been maintained in 90 to 95 per cent of the communities usually with stronger support, than ever before. More public statements by thoughtful leaders and more letters from appreciative parents have expressed approval than were received before 1933.

Objectives.—This success and approval of home economics departments has been attributed to (a) the more careful adaptation of the courses to meet the needs of the girls and of their homes; (b) the closer contacts teachers are having with the homes; (c) the marked increase in successful home projects planned in school and conducted at home by the girls; (d) improved publicity through the newspapers, school exhibits, and better informed supporters; (e) fine coöperation in school and community projects which have had educational values for the girls.

Training of Girls.—The training for ''worthy home membership'' which has been the goal for the girls except where specific trade training is planned has justified a composite course of various home activities. A report by Dr. Lemo Dennis, field worker for the American Home Economics Association, on ''Trends in the Teaching of Child Development in the High Schools'' shows a wide-spread improvement in scope and emphasis and a marked growth in hoped-for influences. More adolescent girls have desirable attitudes of interest, understanding, and joy in children, and have thereby realized their own needs in character improvement, the significance of sound health practices and the joy in doing for others. In using actual home situations for class problems, students have presented more requests for help in managing finances, social relationships within and without the family and in devices for making the most of what they have. The past year saw another decline in the number of girls asking for working or for home permits which meant lower enrollments in part-time schools. Present part-time school girls are taking more home economics. Personal improvement and actual job opportunities as household assistants for which training is included, have interested these girls. Classes in homemaking for adults in "regular" evening schools have decreased since funds for this were among the first items eliminated from many reduced school budgets. Successful classes have featured economy, maximum values in food, clothing, etc., and parent problems in child training.

Progress.—In an address on "Signs of Advancement in Home Economics," Miss Frances Zuill, President of American Home Economics Association, indicated advances made (a) in the practices and skills stressed in home problems; (b) in ideas and attitudes toward housing, size of families, etc.; (c) in going beyond food, clothing and shelter to considerations of economic, social, and psychological functions of the family; (d) in clearer understanding of the double function of the homemaker as a consumer both in the selection of goods, and also in the use of goods; (e) in a long-time view of homemaking; (f) in publicity which passes on findings effectively and wins more intelligent support,—in keeping with Mrs. Franklin D. Roosevelt's admonition to "not be afraid of publicity" and to "dramatize and personalize your work."

The Outlook.—Home-economics education is taking a more definite plan in helping to meet life situations. The response of those enrolled, both adolescents and adults, shows that they are giving them what they want. To have more home economics departments in schools and colleges become the counciling centers for homemaking problems is an ideal we can hold for future achievement.

REHABILITATION OF THE DISABLED ADULT

Official Agencies.—America, emerging through a new vision for social and economic welfare, raised a torch of light and hope for its 120,000,000 people through our national program for relief and reconstruction. Prominent among the numerous agencies which were in position and able to aid directly and efficiently in this gigantic undertaking, have been the state and Federal rehabilitation agencies; established with joint state and Federal support in 1920, and augmented by a recent special grant of Emergency Relief Funds.

Accomplishment.—Since 1920 State Rehabilitation Bureaus have been serving approximately 30,000 disabled adult citizens throughout our country each year; and since 1920 approximately 65,000 such persons have been restored to the maximum of health. They have been trained vocationally and placed in employments where they could work successfully and earn a living and by that means support themselves and their families. Even before the Federal Emergency Act had been made into law and signed by President Roosevelt, the rehabilitation of disabled adult persons was recognized to be one of the most essential and constructive services to be included as necessary to the entire program of national recovery and reconstruction.

Objectives.—Immediately after authorization and plans were completed whereby Rehabilitation Bureaus could coöperate, these State Bureaus put into operation the necessary machinery and the program started. These Bureaus coöperate in placing disabled adult persons in civil employments in the same way they always have. In addition, they are working with County Relief Administrators and National Re-employment Directors throughout every county and state of the nation. Lists of persons who are trained as skilled workmen in the thousands of different occupations and professions are placed in the hands of County Administrators and Re-employment Directors by counties. The abilities and qualifications for each person are tabulated along with their previous work experience. As soon as work assignments include a call at which any of these persons can be assigned are received, these persons are given preference in assignment. In no case is a person being rehabilitated placed on a job for which he is not qualified or able to work successfully. A basic principle in rehabilitation is that "no one is asked to hire a disabled person through sympathy; but if a disabled person is trained and qualified, and if he can work successfully in spite of any handicap he may have, then preference in work assignment and employment is asked.''

The Emergency Relief Program in rehabilitation has now been in operation approximately two months. In practically every county and state, methods of coöperation are working splendidly. In our own state our Department has placed more persons in employment during the first six months of this year than it has been able to place on an average during any previous year. Disabled men are going back to work by the hundreds in our state, by thousands throughout the nation. A more sane, economical or constructive program for relief and reconstruction for our citizens who are handicapped could not be conceived. The program works. Families which have been literally destroyed from every economic and social standpoint, because of some accident in a factory, on our highways, in a home or by disease, are now beginning to rise and ''see a place in the sun'' for themselves. Families that have been dependent on the welfare for years because State and Federal Rehabilitation Bureaus hadn't before had adequate means or effective coöperation for placement are now able to buy food for hungry and undernourished children and shoes for bare feet. What's more, they don't have to exist through the crushed morale of public charity—they are now working and earning their way. Self-respect and pride are returning. We are rebuilding morale and family well-being.

Results.—The program is economical! We had been training these disabled persons during the last four years; but many of them hadn't been hired. The state and Federal Governments had made their investment. These people are now making our investment good. Statistics show that on an average a disabled person can be rehabilitated into employment through vocational training for less than it would cost to support him during a single year on welfare or charity. In rehabilitation, we make our investment once and the disabled person goes on and supports his family year after year. If left without rehabilitation, these people and all their dependents would go on year after year dependent and underprivileged. America's new vision works! The march of reconstruction is going on!

ADULT EDUCATION

By Caroline A. Whipple

Supervisor of Adult Education, New York State Education Department

LEISURE AND DESIRE FOR KNOWLEDGE

One of the most significant social phenomena of our time is the persistent desire for knowledge on the part of adults throughout the world. The reasons for this intellectual awakening, which in its scope and intensity has been compared to the great Renaissance, are not difficult to find. The most obvious cause is without doubt the marked increase in leisure, for now, for the first time in history, the mass of people are freed from long hours of exhausting labor and able to devote attention to things of the mind and spirit. At the present moment, indeed, there is an abnormal and distressing amount of leisure for hundreds of thousands who are too harassed to think of anything except their need of work. The shorter workday, however, has without doubt come to stay and a thirty-hour week will soon be a normal part of our national economy. Even more leisure for older men and women is also rather tragically assured by the increasingly early age of retirement from active employment. In ironical juxtaposition with this practice, is the greater longevity of mankind resulting from newly acquired knowledge of physicians and scientists and their success in combatting disease and physical deterioration.

THE NEED FOR NEW KNOWLEDGE

Another incentive for adult education perhaps no less important than growing leisure is the radical change in American life which has come about in an incredibly short time as a result of inventions and discoveries and as a natural sequence to momentous world events. To accustom themselves to this essentially different environment and to acquire necessary new skills, men and women must needs gain new knowledge. They cannot live adequately otherwise.

THE MEANING OF ADULT EDUCATION

At this point, one might ask "What is adult education?" The late John D. Willard of Teachers College, Columbia University, described it, perhaps rather than defined it, when he said that adult education refers to all purposeful and sustained efforts by adults to increase knowledge, skill or appreciation. It is generally understood also that these efforts are made in one's leisure as an avocation and not as a full-time pursuit.

AGENCIES AND FACILITIES

The agencies that provide facilities for this continued and life-long education are many and varied. The three that stand out most prominently are tax-supported institutions which supply free instruction to vast numbers. They are the public school, the Federal Government, and the public library. The non-tax supported agencies include the radio, colleges and universities, religious institutions, labor unions, industrial establishments, banks, private correspondence schools, women's clubs, and many other similar organizations.

STUDENT ENROLMENT AND DISTRIBUTION

The number of adults enrolled in regularly organized classes is estimated as between 2,000,000 and 3,000,000. Of these the public schools are credited with approximately 1,000,000. Private correspondence schools register 500,000. Extension departments of colleges and universities offer instruction to about 300,000, of whom approximately 50,000 are taking work by correspondence. In workers' education, carried on by organized labor, it is estimated that there are 40,000 or thereabouts. In classes conducted by the Y. W. C. A. and Y. M. C. A. there may be about 300,000 in both formal and informal education. In the Council of Jewish Women, American Association of University Women and other such groups, other thousands are registered.

The millions studying informally under the guidance of the library and other agencies are not included in the figures above, although much of the work done by them is often of unusual excellence. Special mention at this point should be made of the widely read series of booklets entitled *Reading with a Purpose* around which thousands of library patrons are building systematic courses of study. In the larger libraries, the Readers' Advisor is doing an important job in suggesting and planning work not only for individuals who wish to undertake definite preparation for specific skills but also for clubs, study groups and educational institutions.

BROADCASTING PROGRAMS

The radio is already an educational agency of great power and it has potential power which is still greater. Much of value is now on its program, although it is difficult to separate wheat from chaff. The stupendous advantage it has over other teaching facilities is the teacher's ability to reach a countless number of students by word of mouth. This extraordinary instrument has been dramatically utilized by President Roosevelt when he talks to the whole nation, taking the people into his confidence concerning the complex and momentous undertakings of his administration. Without doubt, too, a real appreciation of good music is being developed in this country as a result of the broadcasting of wonderful programs interpreted by the ablest musicians in the world.

AGRICULTURAL EDUCATION

In making the conservative statement that between 2,000,000 and 3,000,000 adults are engaged in organized study, the work of the Federal Department of Agriculture was not included. This program is probably the largest adult educational undertaking in the world, engaging, as it does, about 6,000 professional workers and 350,000 lay leaders and reaching over 10,000,000 adults, mostly farmers and their wives in informal education through demonstrations of proved scientific methods in agriculture, housework, and homemaking.

CORRESPONDENCE SCHOOLS

An agency that reaches a great number of adults in organized study is the private correspondence schools with a register of 500,000 or more students living for the most part outside big cities and primarily interested in vocational subjects. Obviously some of these schools are excellent, many of them mediocre, and some lack all educational and ethical standards. There is, however, an inescapable conclusion concerning correspondence schools and that is that a great number of adults obviously approve of this form of instruction and consider it admirably suited to their needs. The advantages of the better class of these schools lie in the definiteness in which the work is outlined and in the attention paid to specific problems and difficulties. In correspondence instruction, too, individuals are able to pursue their own interests at the rate of speed and in the method best fitted to them without classroom complications. The great disadvantage lies in the lack of personal contact between pupil and instructor and of stimulating companionship between students which often does more than subject matter to liberalize and educate.

NATIONAL AND OTHER ORGANIZATIONS

Among the national organization which are entirely concerned wit adult education are the America Association of Adult Education, th Adult Education Department of th National Education Association, th National Commission on the Enrichment of Adult life, the America Library Association, the Nationa Council of Parent Education, th National Association of Universit Extension, and the Workers Education Bureau. Other organization which are interested in adult education as part of their program ar the National Advisory Council o Radio Education, the American Vocational Association, the Nationa Congress of Parents and Teachers the National Grange, the Nationa Recreation Association, America Association of Museums, The American Federation of Arts, the Ameri can Country Life Association, th General Federation of Women' Clubs, and the Foreign Language Information Service.

WORK OF THE AMERICAN ASSOCIATION OF ADULT EDUCATION

The American Association of Adul Education, since its organization in 1926, has amply justified its existence in the influence it has had o the development of adult education not only by its sponsorship of experimental studies and demonstrations but also by serving as a clearing-house for information, ideas and programs. The *Journal of Adult Education* which the Association publishes quarterly gives in its approximately 120 pages a panoramic picture o adult education activities through out the country and provides an intelligent presentation of policies and principles.

During 1933, the Association sponsored the work of the Adjustment Bureau in New York City, which has for its primary purpose "to assist the individual in discovering his peculiar abilities and limitations to point out reasons for failure to the maladjusted, and to assist in the formulation of sound programs for reeducation and recreation.''

Another accomplishment of the Association during the year has been the organization of the National Occupational Conference which has for its task the assembling of information available to the public. The official organ of this body is *Occupations, the Vocational Guidance Magazine.*

A valuable and unique study *Rural Adult Education* begun by the late Dr. Willard, Research Associate on the staff of the Association and completed by Dr. Benson Y. Landes was published by the Macmillan Company early in 1933 as another of the series of studies sponsored by the Association.

ADULT EDUCATION IN THE PUBLIC SCHOOLS

The Department of Adult Education of the National Education Association has for its special interest adult education in the public schools. Closely connected with it is the National Commission on the Enrichment of Adult Life which has engaged in active publicity to arouse school superintendents and other community leaders to maintain adult education both in the public schools and in local social and civic agencies.

The current year 1933 with its stringent economies and curtailed budgets has been difficult for all kinds of education and particularly for adult education which, as would be expected, has suffered even more than the more firmly established phases of the curriculum. Curiously enough, however, the situation has been saved in part by the very conditions that threatened to destroy it; that is, while the depression has been responsible in practically abolishing adult education in many local school systems, state and Federal relief organizations have cooperated with education officials in giving work relief to professionally trained men and women as teachers in adult education programs of broad scope. In New York State alone, about 50,000 men and women are enrolled as students in these emergency projects, taking courses in commercial and trade education, home economics, agriculture, art, dramatics, music, foreign languages, social sciences, English and Citizenship for Foreigners, and elementary and high school subjects. These 50,000 students may conservatively be multiplied by three to account for different individuals who attend for a longer or shorter time. That is, there is necessarily a decided turnover in these classes attended by adults with responsibilities of home and family.

It is too early to state with any assurance how this work relief adult education program will affect the movement. It has dangers but it has saving grace also. It has, without doubt, popularized adult education, for many thousands are studying who have not been interested before and many more thousands are reading and hearing about the various activities. There is much talk at present of the necessity of a permanent program sponsored by state and Federal governments, not as a relief measure, but as an integral part of the democratic society, whose members must participate in the responsibilities of government.

FINANCIAL FACTORS

One of the fascinations of this widespread interest in continuing education for adults is that there are many problems yet to be solved. Among these the question of finance looms large. How far is it possible to provide free education for adults? For some time, even with a return of prosperity, local school budgets will be carefully scanned and there will be a tendency to restrict expenditures to children's education. There is, too, a strong belief on the part of many persons that what is paid for is more highly valued than what is freely given.

INEQUALITY OF OPPORTUNITY

Another perplexing factor is the inequality of opportunity among adults for educational facilities. If one lives in a community with a population under 20,000, there is little chance of getting instruction. There are still 12,000,000 adults who do not yet possess the meagre qualifications of sixth grade literacy, surely not a situation which a student of democracy can view with equanimity.

THE OUTLOOK

It is almost unnecessary to state, too, that there is a dearth of suitable material for teaching adults, particularly those of little previous education. Teaching techniques are still far from adequate and too little experimentation has been carried on; that is, there has been too little concentration by the best trained minds on these problems of adult learning. For here, in contrast with England and many other European countrie leadership in this socially importa educational interest has not bee taken, with some important exceptions, by the most outstanding me and women in educational and civ life. However, as stated earlier, th depression is showing a silver linin in this respect, for with the ince tive of putting people to work, pro ects in adult education have engaged the attention of leaders no only in education, but in such dive sified fields as politics and government, creative arts and business. A a result tens of thousands of adult who have not known before the jo of acquiring new knowledge an new skills are going to demand continuance of this constructive us of leisure time.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Assn. for Adult Education, 60 E. 42nd St., New York City.

American Council on Education, 744 Jackson Place, Washington, D. C.

American Council of Learned Societies, 907 15th St., Washington, D. C.

American Federation of Teachers, 506 S. Wabash Ave., Chicago, Ill.

American University Union, Columbia University, New York City.

General Education Board, 49 W. 49th Street, New York City.

Bureau of Educational Reference and Research, University of Michigan, Ann Arbor, Mich.

National Congress of Parents and Teachers, 1201 16th St., N. W., Washington, D. C.

National Council of Education, 1800 H Street, N. W., Washington, D. C.

National Education Assn. of the U. S. A., 1201 16th St., N. W., Washington, D. C.

National Home and School Assn. Inc., 17 E. 42nd St., New York City.

National Research Council, Division of Educational Relations 2101 Constitution Ave., Washington D. C.

National Society for the Study o Education, 10 Putnam St., Danvers Mass.

Public Education Assn., 745 Fifth Ave., New York City.

INTERNATIONAL

Institute of International Education, 2 W. 45th St., New York City.

International Council for the Education of Exceptional Children Minneapolis, Minn.

International Council of Religious Education, 100 E. 42nd St., New York City.

Pan-American Educational Congress, Universidad de Chile, Cosilla 2543, Santiago, Chile.

TEACHERS

American Federation of Teachers 506 S. Wabash Ave., Chicago, Ill.

Carnegie Foundation for the Advancement of Teaching, 522 Fifth Avenue, New York City.

Educators Assn., 307 Fifth Ave., New York City.

National Student Federation of America, 218 Madison Ave., New York City.

Students Cooperative Society, 565 Fifth Ave., New York City.

Teachers Union, 70 Fifth Ave., New York City.

SCHOOLS

American School Citizenship League, 295 Commonwealth Ave., Boston, Mass.

Child Study Assn. of America, Inc., 221 W. 57th St., New York City.

National Assn. of High School Supervisors and Inspectors, University of Georgia, Athens, Ga.

National Assn. of Secondary School Principles, 5835 Kimbark Ave., Chicago, Ill.

National Kindergarten Assn., 8 W. 4th St., New York City.

Y. M. C. A. Educational Secretaries Assn., 55 Hanson Place, Brooklyn.

COLLEGES AND UNIVERSITIES

American Assn. of Collegiate Registrars, University of Arkansas, Fayetteville, Ark.

American Assn. of Junior Colleges, Central College, Conway, Ark.

American Assn. of University Professors, 744 Jackson Place, Washington, D. C.

American Assn. of University Women, 1634 I St., N. W., Washington, D. C.

American Society for the Extension of University Teaching, 925 Chestnut St., Philadelphia, Pa.

Assn. of American Colleges, 111 Fifth Ave., New York City.

Assn. of American Universities, Yale University, New Haven, Conn.

Assn. for Colleges for Negro Youth, Shaw University, Raleigh, N. C.

Assn. of Land Grant Colleges, University of Maryland, College Park, Md.

College Entrance Examination Board, 431 W. 117th St., New York City.

National Assn. of Colleges and Universities, 1032 Stewart Ave., S. W., Atlanta, Ga.

National Assn. of State Universities, Miami University, Oxford, O.

National University Extension Assn., Bloomington, Ind.

New England Assn. of Colleges and Secondary Schools, Tufts College, Medford, Mass.

Phi Beta Kappa, 145 W. 55th St., New York City.

PROFESSIONAL EDUCATION

American Assn. of Teachers Colleges, State Normal School, Oneonta, New York.

American Medical Assn., Council on Medical Education and Hospitals, 535 N. Dearborn St., Chicago, Ill.

Assn. of American Law Schools, Tulane University, New Orleans, La.; Harvard University, Boston, Mass.

Assn. of American Medical Colleges, 25 E. Washington St., Chicago, Ill.

Section of Legal Education, American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.

SPECIAL EDUCATION

American Assn. to Promote Teaching of Speech to the Deaf, 1537 35th St., N. W., Washington, D. C.

American Child Health Assn., 450 Seventh Ave., New York City.

American Humane Education Society, 180 Longwood Ave., Boston, Mass.

American Physical Education Assn., 311 Maynard St., Ann Arbor, Mich.

National Assn. for the Deaf, School for the Deaf, Trenton, N. J.

VOCATIONAL

American Assn. for the Advancement of Agricultural Teaching, E. Lansing, Mich.

American Home Economics Assn., 41 Eliot Memorial Road, Newtonville, Mass.

American Vocational Association, Department of Public Instruction, Harrisburg, Pa.

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Bureau of American Workers' Education, 416 W. 24th St., New York City.

National Vocational Guidance Assn., 25 Lawrence Hall, Harvard University, Cambridge, Mass.

Trade Union Unity League, 2 W. 15th Street, New York City.

Note: for additional educational societies consult U. S. Office of Education, Washington, D. C.

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